

# WORK RELATED INJURY AND ILLNESS: EXPLORING THE RETURN-TO-WORK PROGRAM IN MALAYSIA

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**Abstract.** Illness and injury have a significant impact on employees, their families and employers. The consequences faced by an injured worker could lead to disability, which could then lead to inability to work. This study examined the patterns of the Return to Work (RTW) using data from The Social Security Organisation (SOCSO) of Malaysia RTW database from 2010 to 2013. Factors of successful return to work, employees' salary upon returning to formal employment were also investigated. Gender, age, year of injury, industry, and job hierarchy were found to be significant predictors of employees' salary upon returning to work. Although there are other costs involved on the part of employers and employees, themselves, in the long term the financial returns that can be brought back by injured workers who have successfully returned to work combined with the qualitative benefits substantially outweighs the costs of RTW program.

**Keywords:** employees, injury, rehabilitation, return-to-work, salary, Social Security Organisation (SOCSO), Malaysia

## INTRODUCTION

Illness and injury do not just affect employees, but have a significant impact on their families and employers. The consequences faced by an injured worker include physical, psychological, social, and economic factors that could lead to disability (Franche *et al*, 2005; Kuoppala and Lamminpaa, 2008; Bohatko-Naismith *et al*, 2015). This could then lead to inability to work and reduced performance, changing jobs, or permanently reduce work hours that results in loss of income and related

benefits (Butler *et al*, 2006; Hepburn *et al*, 2010). As for the employer, the impact relates to medical and rehabilitation costs, property damage, lost productivity through absenteeism of an injured worker from work, as well as increased colleagues' workload pressure and uncertainty (Franche *et al*, 2005; Kuoppala and Lamminpaa, 2008; Zakaria *et al*, 2012).

Persons with different types of injuries face different barriers to employment and self-sufficiency; therefore, a proactive approach is needed to assist employees to return to work, for the benefit of not only employers and employees, but society as well. Paul and Batinic (2010) and Selenko and Batinic (2012) stressed the importance of five latent benefits of employment, namely, the opportunity to contribute to a higher collective purpose, societal status

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and recognition, an enlarged scope of the social network, a structure to daily activities, and activation. Previous research has shown the impact of early intervention through timely communication with employers and appropriate rehabilitation on reducing the number of days of work absence and the related compensation payout (Franche *et al*, 2005; Kuoppala and Lamminpaa, 2008). It has also been shown that the likelihood of injured workers returning to work decreases with increasing duration of work absence due to illness or injury (Seing *et al* 2015).

In Malaysia, the increasing trends in employment injuries and illnesses has been a concern to the Social Security Organization (SOCSCO), a statutory body that provides comprehensive social protection by providing medical, cash benefits, and rehabilitation to an insured persons who suffers from employment-related injury or illness. Employees from the private sector and public service contract workers with monthly salary not exceeding MYR3,000 (≈USD696) are eligible to register with SOCSCO and contribute to the social security fund. More than MYR912 million was paid out for temporary and permanent disablement and invalidity benefits in 2012 (Social Security Organization Malaysia, 2012) indicating a large number of insured persons on temporary or permanent disablement benefits and invalidity benefits. Similar trends were observed in permanent disablement recipients and permanent invalidity recipients over the past years, which make up the main share of the compensation payout.

The rising number of employment injuries and diseases which led to the increase in compensation payout to recipients and their survivors raises concerns of financial sustainability of social security programs, loss of skills to employers,

disruption to family life and the nation's productivity. Recognizing these concerns, SOCSCO introduced a disability management program known as the Return to Work (RTW) program in 2007.

The program was designed with the objective of assisting SOCSCO insured persons with employment injury benefits, as well as those claiming for invalidity pension to return to work, through a bio-psychosocial and multidisciplinary approach. It is a closely supervised scheme whereby every injured worker is assigned a 'case manager.' Protection against the risk of employment injury, invalidity, and death is a major component of a social security system as identified by Convention 102 of the Minimum Social Security Standards, an international labor standard adopted by members of the International Labour Organization (ILO), of which Malaysia is a member (ILO, 1952, 2011). Malaysia is also a signatory of Biwako Millennium Framework by committing to work towards an inclusive, barrier-free, and rights-based society for all persons with disabilities (Soh, 2014).

The return-to-work (RTW) programs in some countries, including Australia, Sweden, Denmark, and Canada have extended their efforts to pay greater attention to early-return-to-work by getting injured workers back to work before full recovery (Seing *et al*, 2015). Recognizing the therapeutic function of work, in itself, on injured workers, Seing *et al* (2015) posited that resumption of work before full health recovery can have a rehabilitative effect on employees and acknowledged the importance of the role of the workplace. On the part of the employers, they benefit from an early return-to-work program as they begin to gain at least some productivity from the returning employee, possibly reducing the overtime of the remaining

employees and the need to hire replacement workers. Therefore, timeliness of treatment is of utmost importance when considering any rehabilitation program of an injured worker.

Previous studies on work related injury and RTW in Malaysia focused mainly on examining determinants of workplace accidents, the management of disability and rehabilitation program, and factors influencing employment outcomes of injured employees (Abas *et al*, 2011; Olivier *et al*, 2012; Zakaria *et al*, 2012; Mohammed, 2014; Seyedmehdi *et al*, 2015). For example, Zakaria *et al* (2012) found that stress and fatigue, unsafe act, machinery, and tools as well as design of workplace directly influenced workplace accidents, while Seyedmehdi *et al* (2015) found a significant relationship between RTW outcome and demographic variables of the injured.

Annually, approximately 78,000 persons are reported as work accident victims to SOCSO, while 163,700 persons were counted as disabled in 2012 (Department of Statistics Malaysia, 2013). Since its inception, the RTW program has an average of 1,200 participants per year, with more than 8,000 participants by mid-2014 successfully rehabilitated back to work (Mohammed, 2014). The success of the RTW program of an injured worker is influenced by a number of factors ranging from worker related to environmental, outside of the workplace, to the workplace itself. Thus, the implementation of the RTW program involves collaborative efforts of all stakeholders. RTW plays a significant role in the economic empowerment amongst persons with disabilities through re-employment after rehabilitation.

Unless the RTW program is expanded, the Malaysian workforce will continue

to suffer productivity loss, as the current SOCSO scheme reaches out to only 36% of the total workforce. While the best possible scenario would be that injured workers return to their pre-injury job with the same employer and salary, that may not always be possible. The purpose of this study was to examine the patterns of injury and employment of the successful RTW employees and to investigate the factors influencing their salaries upon returning to work, which would provide some indication of the potential economic benefit of the RTW program.

## MATERIALS AND METHODS

### Data

Data for this study were obtained from the SOCSO RTW database from 2010 to 2013, which consisted of 9,850 injured workers who participated in the RTW program. Of this total, 6,375 workers had successfully returned to employment. However, this study only included those participants who had gone back to formal employment and whose monthly salaries at the point of return to work were known, which consisted of 5,656 cases. Workers whose salaries were not known and those who returned to work as self-employed were excluded from this analysis.

### Analysis

Descriptive statistics were generated to examine the patterns of RTW employees. Chi-square statistics were used to test associations between RTW employees with the same employer or a different employer across various socio-demographic and work related variables. Multiple linear regressions were then performed to assess the influence of these variables on their monthly salaries. The predictor variables included in the regression model

Table 1  
Distribution of return-to-work employees by cause of injury, sex and year (N=5,656).

Variable	2010 <i>n</i> (%)	2011 <i>n</i> (%)	2012 <i>n</i> (%)	2013 <i>n</i> (%)	Total <i>N</i> (%)
Total	1,852 (100)	1,477 (100)	1,389 (100)	938 (100)	5,656 (100)
Sex					
Male	1,491 (80.5)	1,217 (82.4)	1,122 (80.8)	773 (82.4)	4,603 (81.4)
Female	361 (19.5)	260 (17.6)	267 (19.2)	165 (17.6)	1,053 (18.6)
Cause of injury					
Commuting accident	959 (51.8)	748 (50.7)	706 (50.8)	502 (53.5)	2,915 (51.5)
Occupational disease	47 (2.5)	27 (1.8)	21 (1.5)	12 (1.3)	107 (1.9)
Workplace injury	657 (35.5)	470 (31.8)	405 (29.2)	286 (30.5)	1,818 (32.1)
Others	189 (10.2)	232 (15.7)	257 (18.5)	138 (14.7)	816 (14.4)

were gender, age, employment injury cause, injury type, industry sector, duration of intervention, and job hierarchy upon returning to work.

Logarithmic transformation was applied to the dependent variable, salary, due to its distribution being positively skewed. The estimated additive model for salary takes the form:

$$\text{Log}(\text{salary}) = \beta_0 + \sum \beta_i \text{ where } i = 1 \text{ to } n.$$

This represents the effects of  $n$  predictor variables on the dependent variable,  $\text{log}(\text{salary})$ . All of the predictor variables were categorical, requiring  $k-1$  parameters to be created for each predictor variable having  $k$  categories. The omitted category in the model was taken as the baseline or reference category.

## RESULTS

The distribution of the 5,656 return-to-work employees by gender and cause of injury for the period 2010 to 2013 is shown in Table 1. Overall, the number of RTW employees shows a declining trend with 1,852 workers in 2010 to 938 in 2013. Consistently over the four-year period,

male workers who went back to formal employment constituted a much higher proportion, with at least 80% of the total successful participants, compared with female workers. Table 1 also indicates that 51.5% of the workers were injured due to commuting accidents.

However, the proportion of workplace injury shows a slight decline from 35.5% in 2010 to 30.5% in 2013, which suggests that employers may have taken efforts towards improving the occupational safety and health in their workplaces. The category, 'Other,' refers to unspecified cause that could come from any of the three causes, namely, commuting accidents, workplace accident, or illness/disease.

Table 2 presents the distribution of RTW employees by age, type of injury, industry, duration of intervention, and job hierarchy. The majority of them are in the age group 25-to-44 years (63.2%) with injuries affecting the upper and lower limbs (69.0%), which is reflective of the injuries caused by commuting accidents, particularly those involving motorcycles. In terms of employment sector, the manufacturing sector registers the highest

Table 2  
Distribution of RTW employees by age, type of injury, industry, intervention period and job hierarchy.

Variable	<i>n</i> (%)
Total ( <i>N</i> )	5,656 (100.0)
Age (years)	
≤24	975 (17.2)
25-34	1,950 (34.5)
35-44	1,625 (28.7)
45-54	993 (17.6)
≥55	113 (2.0)
Type of injury	
Disease/Illness	282 (5.0)
Lower limbs	2,069 (36.6)
Upper limbs	1,832 (32.4)
General injuries/Unspecified	655 (11.6)
Multiple locations	818 (14.4)
Industry sector	
Agriculture/Forestry/Fishery	257 (4.5)
Construction/Mining/Quarrying	382 (6.8)
Services	1,271 (22.5)
Public sector/Financial	819 (14.5)
Institution/Insurance/Trading	
Manufacturing	1,662 (29.4)
Electrical/Electronics/Gas/Water/Sanitary services	336 (5.9)
Transportation	449 (7.9)
Duration of intervention (months)	
1-to-3	2,400 (42.4)
4-to-5	1,514 (26.8)
6-to-9	898 (15.9)
10-to-12	285 (5.0)
>12	559 (9.9)
Job hierarchy	
Same job same employer	3,238 (57.2)
Similar job same employer	843 (14.9)
Different job same employer	405 (7.2)
Same job different employer	241 (4.3)
Similar job different employer	87 (1.5)
Different job different employer	842 (14.9)

proportion (29.4%), followed by services (22.5%), and public sector/financial institutions/insurance/trading (14.5%).

A majority of the successful RTW employees had their intervention period of less than six months from the time they

were placed on the intervention program (69.2%). The intervention period of an injured worker depends very much on the severity of injury as well as intensity of the rehabilitation program, the latter being associated with the belief that the

Table 3  
Comparison of mean salary by selected variables.

Variable	Variable grouping	Mean salary $\pm$ SD	<i>p</i> -value
Gender:	Male	1,670.56 $\pm$ 15.54	0.000
	Female	1,339.09 $\pm$ 29.82	
Age (years):	$\leq$ 24	1,064.35 $\pm$ 16.97	0.000
	25-34	1,548.87 $\pm$ 19.77	
	35-44	1,897.08 $\pm$ 29.44	
	$\geq$ 45	1,771.11 $\pm$ 13.91	
Industry:	Agriculture, forestry, fishery	1,194.23 $\pm$ 46.45	0.000
	Construction, mining, quarrying	1,850.51 $\pm$ 62.30	
	Services	1,573.54 $\pm$ 27.88	
	Public service, financial institution, insurance, trading	1,519.74 $\pm$ 34.59	
	Manufacturing	1,637.38 $\pm$ 24.96	
	Electrical, gas, water, sanitary services	1,708.17 $\pm$ 53.10	
	Transportation	1,856.46 $\pm$ 56.83	
	Others	1,484.10 $\pm$ 52.23	
Cause of injury:	Commuting accident	1,578.96 $\pm$ 18.12	0.000
	Occupational diseases	1,890.34 $\pm$ 100.63	
	Workplace accident	1,676.66 $\pm$ 26.73	
	Others	1,527.61 $\pm$ 36.84	
Type of injury:	Diseases	1,424.77 $\pm$ 57.90	0.000
	Lower limbs	1,590.66 $\pm$ 22.15	
	Upper limbs	1,591.74 $\pm$ 24.06	
	General injuries	1,847.50 $\pm$ 49.38	
	Multiple locations	1,565.52 $\pm$ 34.40	
Year of injury:	2010	1,509.63 $\pm$ 22.11	0.000
	2011	1,595.28 $\pm$ 28.14	
	2012	1,641.41 $\pm$ 29.29	
	2013	1,778.88 $\pm$ 35.20	
Duration of intervention:	$<$ 6 months	1,608.51 $\pm$ 16.13	0.000
	$\geq$ 6 months	1,596.54 $\pm$ 25.42	
Job hierarchy:	Same/similar job same employer	1,732.68 $\pm$ 17.09	0.000
	Different job same employer	1,594.70 $\pm$ 48.77	
	Same/similar job different employer	1,496.70 $\pm$ 50.27	
	Different job different employer	1,059.12 $\pm$ 22.19	

shorter the duration of intervention, the more likely is the injured worker will successfully return to work.

Overall among the RTW employees, nearly 80% went back to the same employer, with more than 50% returning to the same job. The high proportion of

employees who successfully returned to the same or similar job with the same employer suggests that the majority of these injured workers would have received almost the same monthly salaries if not equal to their last drawn salaries before they were injured.

Table 4  
Factors of successful RTW employees' salaries.

Regression model		Full model			Reduced model		
		B	SE	Exp(B)	B	SE	Exp(B)
Gender:	Female	-0.103	0.008	0.902 <sup>a</sup>	-0.105	0.008	0.900 <sup>a</sup>
Age (years):	25-34	0.135	0.009	1.145 <sup>a</sup>	0.136	0.009	1.146 <sup>a</sup>
	35-44	0.202	0.010	1.224 <sup>a</sup>	0.202	0.009	1.224 <sup>a</sup>
	≥45	0.165	0.010	1.179 <sup>a</sup>	0.164	0.010	1.178 <sup>a</sup>
Year of injury:	2011	0.018	0.008	1.018 <sup>a</sup>	0.016	0.008	1.016 <sup>a</sup>
	2012	0.041	0.008	1.042 <sup>a</sup>	0.037	0.008	1.038 <sup>a</sup>
	2013	0.078	0.009	1.080 <sup>a</sup>	0.073	0.009	1.076 <sup>a</sup>
Cause of injury:	Occupational disease	0.042	0.024	1.042			
	Workplace accident	-0.004	0.007	0.996			
	Others	-0.024	0.011	0.976 <sup>a</sup>			
Industry:	Agriculture	-0.134	0.016	0.875 <sup>a</sup>	-0.137	0.016	0.872 <sup>a</sup>
	Construction	0.032	0.013	1.033 <sup>a</sup>	0.030	0.013	1.030 <sup>a</sup>
	Services	0.001	0.009	1.001	-0.001	0.009	0.999
	Public service	-0.011	0.010	0.989	-0.011	0.010	0.989
	Electronics/Electrical	0.021	0.014	1.021	0.021	0.014	1.021
	Transportation	0.029	0.012	1.029 <sup>a</sup>	0.030	0.012	1.030 <sup>a</sup>
	Others	-0.035	0.012	0.966 <sup>a</sup>	-0.035	0.012	0.966 <sup>a</sup>
Injury type:	Diseases	-0.015	0.017	0.985			
	Upper limbs	-0.004	0.007	0.996			
	General injuries	0.044	0.011	1.045 <sup>a</sup>			
	Multiple locations	0.001	0.010	1.001			
Job hierarchy:	Different job same employer	-0.044	0.012	0.957 <sup>a</sup>	-0.043	0.012	0.958 <sup>a</sup>
	Same/similar job different employer	-0.062	0.013	0.940 <sup>a</sup>	-0.063	0.013	0.939 <sup>a</sup>
	Different job different employer	-0.183	0.009	0.833 <sup>a</sup>	-0.187	0.009	0.829 <sup>a</sup>
	Adjusted R <sup>2</sup>			0.205			0.199

<sup>a</sup>Significant at 5%. Reference categories: Gender, male; Age, <25 years; Year, 2010; Injury cause, commuting accident; Industry, manufacturing; Injury type, lower limbs; Job hierarchy, same/similar job same employer.

### Examining RTW employees' salaries

Univariate analyses were performed using a two-sample *t*-test for comparing the mean salaries by gender and intervention period, while ANOVA were used to compare the mean salaries by age, employment sector, cause of injury, type of injury, year of injury, and job hierarchy. Duration of intervention was

recorded into two groups: <6 months and ≥6 months, while job hierarchy was recorded into four groups, namely, same/similar job with same employer, different job same employer, same/similar job different employer, and different job different employer. The results presented in Table 3 suggest that the mean salaries are significantly different across the vari-

ous socio-demographic and employment characteristics.

Two multiple regression analysis models were performed on the log salary of RTW employees. The results of both the final model and the reduced model are presented in Table 4, which suggest that gender, age, year of injury, employment sector, and job hierarchy upon returning to work are significant determinants of salary. The adjusted  $R^2$  for the reduced model is not that much lower than that of the full model indicating the goodness of fit of the reduced model in explaining the variation in salary. As the model was based on log transformation of the dependent variable, salary, the interpretation of the parameters would have to be based on the exponential of the coefficients of the respective parameters relative to the reference category. For the variable gender, the reduced model shows that  $\text{Exp}(\text{female coefficient})=0.902$ , and we can say that the salary is 10% lower for female employees than for male employees.

For age, the results suggest that the salary of employees, aged 25-34 years, is about 15% higher than the salary of employees aged younger than 25 years. Similarly, the salary of employees aged 35-44 years and those older than 44 years are about 22% and 18%, respectively, higher than that of employees younger than 25 years. It can be observed that salary increases with the year of injury when compared with 2010. In terms of industry, employees in the agriculture sector have about 12% lower salaries compared with those in manufacturing, while construction and transportation sector employees have 3% higher salary than those in manufacturing.

With respect to job hierarchy, employees who returned to the same or similar job with the same employer have the highest salary. Employees who returned

to a different job with the same employer have about 4% lower salary, employees who returned to the same job with different employer have about 6% lower salary and those who returned to different job with different employer have 17% lower salary, compared with employees who returned to the same or similar job with the same employer.

## DISCUSSION

This study examined the profile of SOCSO injured workers who participated in the return-to-work program, and who successfully returned to formal employment for the period 2010-to-2013. Male workers constituted a much higher proportion of the total successful participants than female workers did, with one-third in the age group 25-34 years. In terms of the manufacturing industry sector, this accounts for the highest proportion, and more than half of the workers were injured due to commuting accidents. The results are reflective of the proportion of workers who were injured: young males who used motorcycles to commute to the workplace. Therefore, there is a need for basic health and safety training with emphasis on road safety for younger and male workers.

The majority of the successful return-to-work employees had their intervention periods of less than six months from the time they were placed on the RTW program. The intervention period of an injured worker depends on the severity of injury as well as the intensity of the rehabilitation program: the shorter the program and the more intensive the rehabilitation later being associated with the understanding that the shorter the duration of intervention, the more likely is the injured worker will successfully return to

work. Overall, among those who returned to work, nearly 80% of successful return-to-work employees went back to the same employer, which suggests that majority of these injured workers would have received roughly about the same monthly salaries as before they were injured.

The regression analysis on salary suggests that gender, age, year of injury, employment industry sector, and job hierarchy upon returning to work are significant determinants of salary. Female workers and those aged 25 years and younger received significantly lower salaries than their respective counterparts did, and that salary increases with the year of injury. As expected, agriculture sector workers had lower salaries compared with those in manufacturing sector, while construction and transportation sector employees have 3% higher salaries than those in manufacturing.

The differences in salary across gender, age, and employment could be due to inherent differences that are not related to whether they were injured or not. With respect to job hierarchy, employees who returned to the same or similar job with the same employer have the highest salaries. Previous research has shown that job accommodations can reduce productivity losses especially for the RTW workers in stable employment (Butler *et al*, 2006).

On the part of the injured workers, going back to employment assures them of regular monthly salary and so their continued contribution to the social security system. In addition, the success of the RTW Program has several qualitative impacts, which are key when measuring the overall success. Indeed, psychosocial indicators show a significant improvement in skills, career goals, independence, self-esteem, self-confidence, health condition, and pain tolerance as well as a reduction

in the levels of depression, anxiety, and stress following the end of the program. The benefits of having injured workers return to work are extended to employers in terms of regaining productivity loss, reducing work pressure of colleagues at work, and costs of new recruitment. Employers are also seen as responsible and caring towards the welfare of employees and so portraying a good image.

The increasing trend in the number of injury cases over the years, sanctions for an increase in the RTW investment, as well as intensification of the RTW program to ensure high proportion of successful return to employment. A successful return to work requires the collaborative efforts of all involved. Case managers, physicians, family, friends, and colleagues can be powerful influences in motivating their injured worker patients to take initiative and active interest in their own rehabilitation, and managing their return-to-work expectations. Bohatko-Naismith *et al* (2015) emphasized the role and essential characteristics of RTW coordinators necessary in assisting the RTW process for injured workers, while Hepburn *et al* (2010) propose workplace-based return-to-work strategies to reduce the duration of work disability. When an employee who suffers an on-the-job injury is able to return to work, even in a limited capacity, it is a morale booster for the individual as well as for others in the organization.

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