



Do different types of financial support after illness or injury affect socio-economic outcomes? A natural experiment in New Zealand

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ABSTRACT

Background: In New Zealand, people unable to work due to an illness may be eligible for a means-tested benefit whereas injured people are eligible for a wide range of support including earnings-related compensation through the no-fault Accident Compensation Corporation (ACC). The effect of this difference on socio-economic outcomes has not been investigated before.

Methods: A comparative cohort study was undertaken of stroke versus injury. Individuals aged 18–64, who had a first-stroke ($n = 109$) were matched by age, sex and functional impairment with injured individuals ($n = 429$) participating in the Prospective Outcomes of Injury Study. Data were collected by interview 3.5 and 12 months after stroke or injury. Logistic regression adjusting for the matching variables at 3.5 months, and functional impairment at 12 months, was undertaken.

Results: Median personal income declined by 60% over 12 months for the Stroke Group compared to 13% decline in the Injury Group. Decline in income was greater for those in both groups who had a higher income initially, and for those who had not returned to work. The proportion of the Stroke Group reporting 'Fairly low/low' standard of living increased from 8% to 28% and 'Just/not enough' income increased from 35% to 61% whereas the Injury Group increased only from 5% to 12% and 33%–44% respectively. The odds of reporting low standard of living and income inadequacy at 12 months were significantly less for the Injury Group. Despite earnings-related compensation (80% of income), the odds of being back at work were greater for the Injury Group compared to the Stroke Group (Adjusted Odds Ratio 3.1; 95% CI 1.7–5.6).

Conclusions: These findings support the conclusions that earnings-related compensation and rehabilitative support, available to injured people via ACC, largely prevents the downward spiral into poverty and ill health. It also appears to enhance return to work though residual confounding cannot be ruled out.

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Introduction

The onset of a serious sudden illness or injury has been described as a 'critical period' in the life course of an individual (Bartley, Blane, & Montgomery, 1997). Not only does it have a major impact on the health of the individual, but the inability to work and associated costs can lead to a decline in socio-economic status (Jenkins & Rigg, 2004; Reville & Schoeni, 2001; Riphahn, 1999).

One of the purposes of social security systems is to protect against financial difficulty in times of unemployment through illness or injury (Burchardt, 2003b). This can be done through

compensation for loss of wages or through a government social welfare scheme providing a 'safety-net' benefit.

New Zealand has disparate systems for recompensing people unable to work due to illness or injury. Injured people are eligible for compensation via the Accident Compensation Corporation (ACC) – a system considered unique in the world in that eligibility for benefits is not contingent on cause, fault, type or place of injury (Smith, 1982b; St John, 1999). Compensation can include weekly payments of up to 80% of pre-injury income during rehabilitation (capped at approximately NZ\$110,000 per annum in 2010/11 (Accident Compensation Corporation (ACC), 2012c)), lump sum payments for serious injury, and extra assistance with health care and rehabilitation services (ACC, 2012a). In contrast, those with an illness and unable to work may receive a means-tested government sickness or invalids benefit which is approximately 50% of the adult minimum wage (\$510 for a 40-h week in 2010), as well as health

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care and variable support services (Ministry of Social Development, 2010). Despite the original recommendation in 1967 to include both illness and injury under New Zealand's ACC scheme (Royal Commission of Inquiry, 1967), this has never occurred. The apparent unfairness of this situation has been subject to considerable controversy (Smith, 1982a) and to an unsuccessful legal challenge (Human Rights Review Tribunal of New Zealand, 2007). Yet no one has previously attempted to measure the socio-economic consequences of this anomaly.

While some degree of earnings loss may be inevitable after an illness or an injury, particularly if an individual has a prolonged absence from work, the amount of decline should be mitigated by the financial support received. In New Zealand, those with an illness who receive a lower level of financial support compared to those with an injury would be expected to have poorer financial outcomes, unless they return to work earlier.

Provision of earnings-related compensation, as with New Zealand's ACC scheme, might be expected to be associated with delay in return to paid employment among the injured, as has been observed with other types of compensation for injury (Clay, Newstead, & McClure, 2010a; Johnson & Ondrich, 1990; MacKenzie et al., 1998). Reasons given for poorer outcomes amongst fault-based compensation recipients are the need to maintain symptoms in order to gain compensation, the difficulty in moving on with life until a claim is settled, and the extra stress involved in the litigation process (Cameron & Gabbe, 2009; Cassidy et al., 2000; Murgatroyd, Cameron, & Harris, 2011). These reasons are much less relevant to the New Zealand no-fault system of compensation for injury which precludes common law damages claims in all but a very small number of cases, and minimizes the number of disputes (approximately 6000 per year which is less than 0.5% of all ACC claims) (Dispute Resolution Services, 2012). Nevertheless, because compensation level is close to pre-injury income, the possibility of malingering has been suggested; in contrast, the financial pressure to get back to work should be much greater after an illness, especially for those on higher pre-illness incomes.

The Prospective Outcomes of Injury Study (POIS), a longitudinal study of outcomes for people experiencing an acute-onset injury is underway in New Zealand (Derrett et al., 2009, 2011). POIS follows 2856 people aged 18–64 years and provided an opportunity to run a parallel study with a group of people of similar age and level of functional impairment but who had suffered an acute-onset illness (Illness Study). This approach allowed us to take advantage of the 'natural experiment' existing in New Zealand where people are allocated to different types of support depending only on the cause of their impairment (i.e. illness or injury) and offered the opportunity to find out whether a specifically no-fault compensation scheme does in fact deter return to work compared with bare 'safety-net' income provision.

We undertook a comparative cohort study with the aim of describing and comparing groups of people with an acute-onset illness and an acute-onset injury according to: 1) economic outcomes one year after the event, and 2) return to paid employment among those employed pre-event. Secondary analyses consider the effects on economic outcomes of prior income and of not returning to work.

Methods

Prospective Outcomes of Injury Study (POIS)

The POIS methods are described in detail elsewhere (Derrett et al., 2009, 2011), but in brief, the study recruited participants living in one of five regions of New Zealand, injured between June

2007 and May 2009, who were on the ACC entitlement claimant register. This register comprises people with accepted claims and injury serious enough to potentially warrant a week or more off work and require on-going support such as income compensation and assistance for return to work or independence. A matched sample of participants from POIS formed the comparison group for those in the Illness Study.

Illness Study

To ensure the illness and injury groups were as similar as possible in all factors, except for the cause of impairment, participants in the Illness Study had to have an illness which: a) was of sudden-onset, b) resulted in functional impairment, c) occurred in sufficient numbers in people aged 18–64 years in the same regions of New Zealand as POIS and, d) had a pathway through the health system that allowed recruitment. People who experienced a first-ever stroke fitted each of these criteria and this was chosen as the comparison illness. Eligible participants for the Illness Study were New Zealand residents, aged 18–64 years, admitted to a hospital or rehabilitation unit with a first-ever diagnosis of stroke between January 2009 and November 2010, and able to communicate sufficiently to undertake an interview. A research nurse in each centre approached eligible participants to explain the study and seek their approval for an interviewer to contact them. An interviewer contacted those who agreed and arranged a time to undertake the first interview, either by telephone or face-to-face.

Study procedure

The two studies (Illness and POIS) followed the same prospective design with the first interview undertaken approximately 3.5 months after the illness or injury and a follow-up interview at 12 months.

Matching of participants

Participants in the Illness Study were each individually matched with up to five POIS participants. Matching variables were the potential confounders of age, sex, and functional impairment as reported by individuals approximately 3.5 months after the stroke or injury. Three questions from the EQ-5D general health status measure (Mobility, Self-care, and Pain or discomfort) (Brooks, 1996; The EuroQol Group, 1990) as well as an extra question, in the EQ-5D format, on cognitive ability that asked participants about problems with remembering, concentrating, thinking and solving day to day problems (Krabbe, Stouthard, Essink-Bot, & Bonsel, 1999; Langley, Derrett, Davie, Ameratunga, & Wyeth, 2011), were used to match on functional impairment. The EQ-5D questions asked participants to rate the problem level for each question ('No', 'Some', 'Extreme') – responses were dichotomised as 'No problems' and 'Any problems'. The questions were then combined to produce an 'impairment profile' for each individual.

Matching was done by a statistician (P.H.) who was unaware of the characteristics of individuals apart from the matching variables. Two to five exact matches with the same sex, 'impairment profile' and age (plus or minus five years) were found for 81 (74%) Illness Study participants (described as a 'good match'). For the remaining 28 (26%) participants, only one exact match was found. Additional matches for these people were chosen from the POIS with age, sex and 'impairment profiles' as closely matched as possible (described as a 'moderate match'). An extra 'Goodness of match' variable was created in the dataset which was then adjusted for in every analysis. The matching process yielded an injury comparison group of

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