



www.consequencesofworkinjury.ca

Does Permanent Impairment from a Workplace Accident Increase the Risk of Marital Break-up?

Emile Tompa, Heather Scott-Marshall, Miao Fang, and Claire de Oliveira

Research Action Alliance on the Consequences of Work Injury Symposium
Toronto, Ontario

May 22, 2009

Funding provided by the Social Science and Humanities Research Council of Canada under their Community-University Research Alliance funding envelope (Grant 833-2005-1012)

Introduction

- work injury resulting in permanent impairment is a major negative life event
- can give rise to substantial economic and non-economic losses
- anecdotal evidence suggests that stress from work injury and permanent impairment can lead to marital break-up
- this study investigates the probability of break-up for individuals sustaining a permanent impairment from a work injury

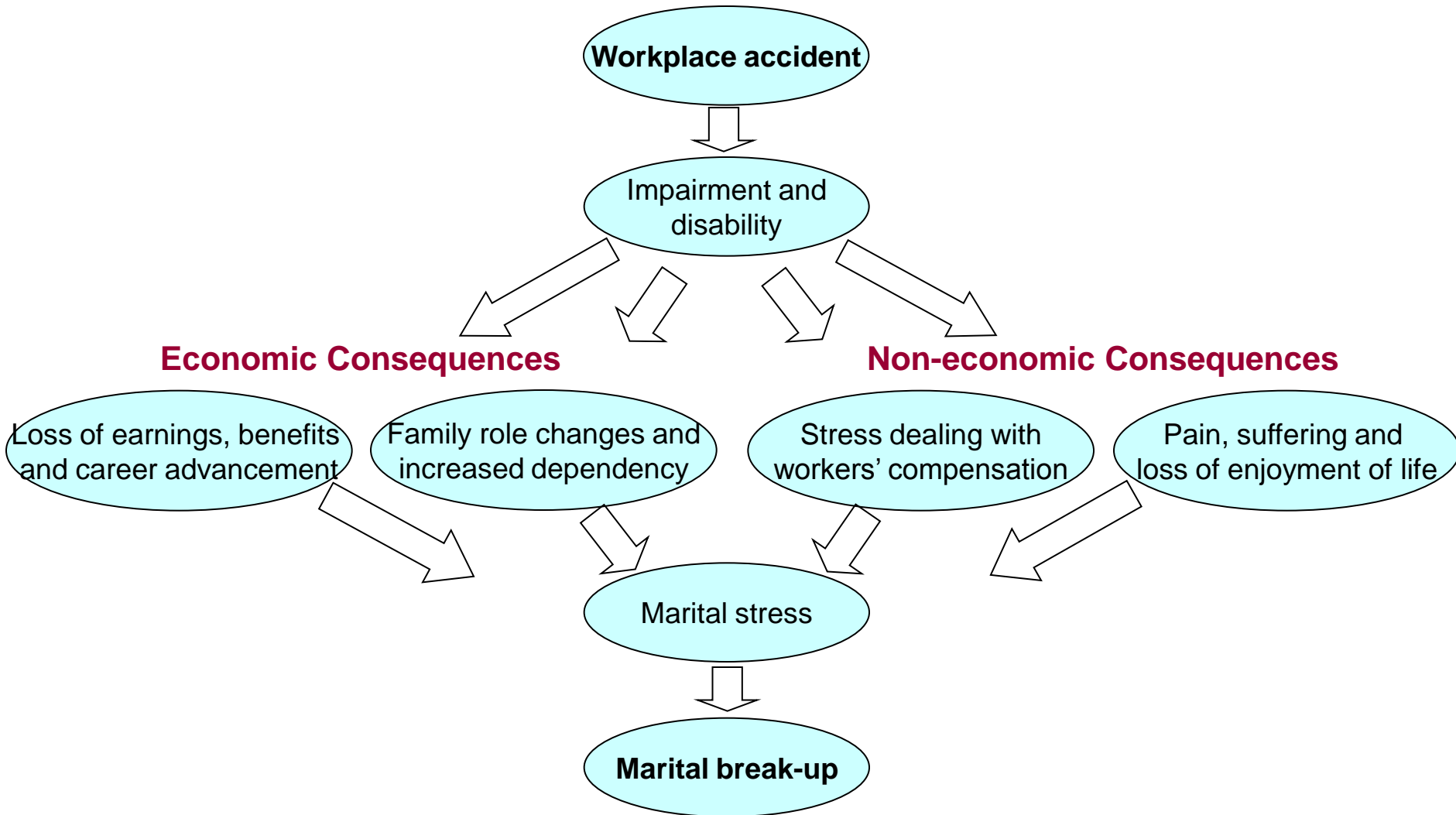


Consequences of Work Injury

- economic consequences associated with employment
 - loss of earnings and employee benefits
 - loss of career advancement opportunities
- other economic consequences
 - out of pocket expenses for some health care, support services
 - family changes in roles and opportunities that have economic implications
 - dependency on pension/social programs
- non-economic losses
 - decline in health due to accident and injury cascading
 - increased dependency on others
 - stress dealing with WC system
 - pain, suffering and loss of enjoyment of life



Conceptual Framework



Related Research (1)

- several recent studies considered the impact of unemployment, job-loss and unexpected decrease in earnings— found that these experiences increase the probability of marital break-up
- study of injured workers in Florida and Wisconsin— found that they experienced feelings of depression, anger, and strain on family relationships (Strunin and Boden 2004)
- study of injured workers in Pennsylvania— found that they reported inability to participate in family activities, loss of sex life, divorce, financial pressures, and emotional stress related to feelings of depression and lowered self-esteem (Dawson 1994)



Related Research (2)

- US study of injured workers-- found that they are 25% more likely to get divorced than their non-injured counterparts (Dembe 1999)
- Ontario study of 40 permanently impaired workers—reported several relationship break-ups attributed to the stress caused by the workplace injury (Ballantyne 2001)
- British Columbia study that compared time-loss and no-time loss claimants– found that those with time loss were less likely to break-up than those with no-time loss (Brown et al. 2007)



Study Hypotheses

1. Individuals with a permanent impairment from a work injury are more likely to have a marital break-up than individuals not experiencing a work injury.
2. Other characteristics are also associated with the probability of marital break-up (e.g., age of worker at time of injury, age difference between a couple, number of children, household income, and change in earnings of worker).
3. After controlling for these other characteristics, individuals with permanent impairment are still more likely to have a marital break-up than individuals with no work injury.



Sample and Data Sources

- used sample frame from WSIB of individuals with permanent impairments from a work injury
- work accidents that occurred between 1990-1994
- workers' compensation data linked to the Longitudinal Administrative Databank (LAD)
- LAD is 20% simple random sample of Canadian tax filing population
- linkage enabled us to match individuals in claimant sample with similar individuals not experiencing a work injury
- LAD used to identify income sources and amounts, and follow individuals and their census families over time



Depiction of Sample

pre-injury years	injury window	post-injury years
1982 - 1989	1990 - 1994	1995 - 2006
LAD time frame: 1982-2006		
<		>



Methods

- for each individual in the claimant sample we identified several uninjured individuals with similar characteristics
- characteristics used to match claimant and uninjured individuals:
 - gender, marital status, presence of children, age, labour-market income prior to accident, ratio of own income to family income
- ran statistical models with claimant sample and uninjured individuals to test the probability of marital break-up in each year
 - separate models estimated for men and women
- key variable—individual has/does not have a permanent impairment due to a workplace accident
- included other characteristics hypothesized to be related to marital break-up



Sample Characteristics

	Men			
	no break up	break up	total	percent break-up
impaired	10,368	4,666	15,034	31%
not impaired	52,611	20,069	72,681	28%

	Women			
	no break up	break up	total	percent break-up
impaired	3,982	1,987	5,969	33%
not impaired	23,263	9,724	32,987	29%



Findings

- individuals with permanent impairments 22% to 25% more likely to break-up, even after controlling for other characteristics
- characteristics that decrease probability of break-up:
 - higher family income
 - married for more years prior to observation period
 - having more children under 16 (for men)
 - older age
 - husband much older (for women)
- characteristics that increase probability of break-up:
 - losing the role of principal income earner (for men)
 - becoming the principal income earner
 - wife much younger (for men)
 - rural residence (for men)



Discussion

- work injury and permanent impairment can have more than just economic implications
- it can have social impact on injured workers and their families
- study suggests approximately a 25% increased probability of break-up for these individuals due to non-economic factors
- need to explore several issues in more detail:
 - role of level of impairment
 - income sources and amounts that bear on marital break-up
 - impact of labour-market activity changes of spouse



Thank You

For more information, please contact:

Emile Tompa

Institute For Work & Health

etompa@iwh.on.ca

www.consequencesofworkinjury.ca



Methods Outline

- injured workers married in year prior to accident matched to married uninjured controls
- matched each claimant with up to 10 uninjured controls
- matching characteristics:
 - propensity score, gender, labour-market income prior to accident, presence of children, age, ratio of own income to family income prior to accident
- estimated non-parametric hazard
- estimated logit hazard model (c-log-log model) with constant and time varying covariates
- key variable—worker has/does not have a permanent impairment due to a workplace accident
- included other characteristics assumed related to marital break-up



Matching Details

Exact match characteristics

- gender
- province of residence
- presence of children under 16 in year prior to accident

Non-exact match characteristics

- propensity score (+/- 25% x 1 standard deviation)
- labour-market earnings in each of the four years prior to accident (+/-20%)
- age (+/- 2 years)
- presence patterns in each of the four years prior to accident



Statistical Modeling Details

- Logit model with c-log-log link function
 - within period (year) hazard is constant
 - across period (years) hazard is a step function
- followed individuals from year of accident till marital break-up
- corrected for correlation of errors on within-person yearly observations over time
- attempted hierarchical (fragility) modeling with claimant and matched controls as level 1, claimant-control clusters as level 2
- separate models run for males and females



Model Covariates

Constant variables

- ***impaired:*** yes/no observation is in the impaired claimant sample
- ***male-female age difference:*** male spouse less female spouse age
- ***years married:*** years married prior to accident (up to 8 years)

Time varying variables

- ***age:*** individual's age and age squared
- ***children:*** number of children under 16
- ***family income:*** total family income from all sources
- ***change from/to principle income earner:*** defined as contributing >50% of family income from own labour-market activity
- ***rural/urban residence:*** based on postal code



Results (1)

Duration Model of Time to Marital Breakup (Females, Ontario Sample)

Explanatory Variables	Percent Difference	95% CI	Sig	Explanatory Variables	Percent Difference	95% CI	Sig
Impaired <i>not impaired (reference group)</i>	24%	16% 32%	**	Family income <i>1994 dollars</i>	-14%	-15% -13%	**
Age <i>Measured in years</i>	-16%	-17% -14%	**	Change to principal earner	61%	50% 72%	**
Age squared	0%	0% 0%	**	Change to dependent	43%	31% 56%	**
Age difference <i>Male age less female age</i>	-7%	-7% -6%	**	<i>No change in status (reference group)</i>			
Children under 16 <i>Count variable</i>	0%	-3% 3%		Years married	-9%	-10% -8%	**
Sample size	295,200 observation years			<i>Years married prior to accident (up to 8+)</i>			
				Rural residence	-1%	-7% 6%	
				<i>Urban residence (reference group)</i>			
				<i>Count variable</i>			

**p≤0.01 *p≤0.05



Results (2)

Duration Model of Time to Marital Breakup (Males, Ontario Sample)

Explanatory Variables	Percent Difference	95% CI	Sig	Explanatory Variables	Percent Difference	95% CI	Sig
Impaired <i>not impaired (reference group)</i>	22%	17% 28%	**	Family income <i>1994 dollars</i>	-13%	-14% -12%	**
Age <i>Measured in years</i>	-9%	-10% -8%	**	Change to principal earner	17%	10% 24%	**
Age squared	0%	0% 0%	**	Change to dependent	6%	1% 11%	*
Age difference <i>Male age less female age</i>	6%	6% 7%	**	<i>No change in status (reference group)</i>			
Children under 16 <i>Count variable</i>	-9%	-11% -7%	**	Years married	-13%	-13% -12%	**
Sample size	640,731 observation years			<i>Years married prior to accident (up to 8+)</i>			
				Rural residence	10%	5% 15%	**
				<i>Urban residence (reference group)</i>			
				<i>Count variable</i>			

**p≤0.01 *p≤0.05

