

Bouncing Back From Back Pain / Marjorie L. Baldwin, MD

Bouncing Back from Back Pain

Western Occupational Health Conference
Scottsdale, Arizona
September 12, 2009

Background

- The workers' compensation model, designed for accidental injuries such as fractures, burns, etc. is not well suited to cumulative trauma injuries such as back pain
 - Difficult to attribute back pain to a specific workplace event
 - Difficult or impossible to evaluate with objective tests – no consensus on best treatments
 - A return to work does not necessarily mark the end of an episode of back pain
- Workers with lengthy and repeated work absences impose tremendous costs on the workers' compensation system, primarily in the form of disability payments for lost work time
- Can we identify, early in an episode of back pain, which cases are likely to become long-duration, high-cost claims?
- We tested the predictive power of five common measures of the severity of back pain to evaluate the ability to predict work disability for up to one year after onset

Learning Objectives

- Be able to
 - identify four common patterns of post-injury employment among workers who have filed claims for occupational back pain
 - describe the nature and purpose of five common measures of the severity of back pain
 - compare the relative validity of the severity measures in predicting return to work outcomes in the first year after onset

Data: ASU Healthy Back Study

- Study population
 - Drawn from four employers with over 200,000 workers in 37 states
 - Representing services and manufacturing, public and private sector
- Employers notified the research team when a worker filed a compensation claim for occupational back pain
 - Received 4,901 notifications between 1999 and 2002
- Baseline interview conducted as soon as possible after onset, follow-ups at 1, 6, 12 months

Data: ASU Healthy Back Study

- Survey collected information on:
 - History of back pain
 - Self-reported severity measures
 - Health care providers/Satisfaction with health care
 - Return to work/Job accommodations
 - Job satisfaction
- Merged with administrative data/first reports of injury for:
 - Demographics
 - Job history
 - Nature of injury and claims data

Data: Self-Reported Severity Measures

- Back or leg pain intensity
 - Numerical rating scale (NCS-101)
 - Intensity of pain from '0' (not bothersome at all) to '100' (extremely bothersome)
- Functional limitations
 - Roland-Morris scale
 - Percent disability from 0 (not limited at all) to 100 (very limited)
- General health status
 - SF-12 mental and physical components
 - Health-related quality of life from 0 (very poor) to 100 (perfect health)

Bouncing Back From Back Pain / Marjorie L. Baldwin, MD

Data: Sample questions from Roland-Morris

- I stay at home most of the time because of my back.
- I change position frequently to try and get my back comfortable.
- I walk more slowly than usual because of my back.
- Because of my back I am not doing any of the jobs that I usually do around the house.
- Because of my back, I use a handrail to get upstairs.

Roland MO, Morris RW. A study of the natural history of back pain. Part 1: Development of a reliable and sensitive measure of disability in low back pain. Spine 1983; 8: 141-144

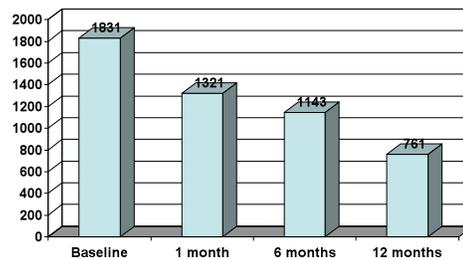
Data: Sample questions from SF-12

- Does your health now limit you in the following activities? If so, how much?
 - Moderate activities, such as moving a table, pushing a vacuum cleaner, bowling, or playing golf
 - Climbing several flights of stairs
- Yes, limited a lot/ Yes, limited a little/ No, not limited at all
- How much of the time during the past four weeks
 - Have you felt calm and peaceful?
 - Did you have a lot of energy?
 - Have you felt downhearted and depressed?
- All the time/most of the time/ some of the time/a little of the time/none of the time

Data: Study Sample

- Eligibility criteria
 - Age 18 and over
 - Filed a WC claim for back pain between Jan 1 1999 and June 30 2002
- Exclusion criteria
 - Injury = fracture
 - Claim denied or litigated
 - 2nd or subsequent claims
- N=1,831 workers
 - 51% of eligible claims

Data- Sample sizes



Methods: Outcomes Measure

Patterns of post-injury employment at 6 and 12 months

- Pattern 1
 - No time off work associated with back pain (no absence)
- Pattern 2
 - A return to work after initial absence and no subsequent spells of pain-related work absence (return and stay)
- Pattern 3
 - A return to work after first absence followed by one or more spells of pain-related work absence (multiple episodes)
- Pattern 4
 - Absent from work since the onset of back pain (not yet returned)

Methods: Estimating models

- Which severity measures are best at identifying potentially high-risk cases?
 - Logistic model where dependent variable=1 for workers who experience patterns 3 or 4 (poor work outcomes)
 - Estimated at 6 (N=585) and 12 (N=332) months post-onset, using severity measures collected at the baseline interview
 - Compare p-values to identify which severity measures are significant predictors of outcomes

Bouncing Back From Back Pain / Marjorie L. Baldwin, MD

Methods: Model specifications

- **Basic model**
 - Controls for age, gender, expectations of recovery, right to choose a health provider, work experience, job satisfaction, firm
 - Excludes severity measures
- **Comparison models**
 - Basic model + back pain intensity + leg pain intensity
 - Basic model + Roland-Morris score
 - Basic model + SF-12 physical + SF-12 mental
 - Basic model + all severity measures

Results: Correlations between Severity Measures

	Back pain	Leg pain	Roland-Morris	SF-12 physical	SF-12 mental
Back pain	1.00	.47	.63	-.59	-.36
Leg pain	.47	1.00	.49	-.39	-.37
Roland-Morris	.63	.49	1.00	-.72	-.50
SF-12 physical	-.59	-.39	-.72	1.00	.21
SF-12 mental	-.36	-.37	-.50	.21	1.00

Results: Patterns Models at 6 Months

P-values from each comparison model

Back pain	.002			.84
Leg pain	.37			.26
Roland-Morris		<.0001		.03
SF-12 – physical			<.0001	.19
SF-12 mental			<.0001	.02

Results: Patterns Models at 12 Months

P-values from each comparison model

Back pain	.07			.25
Leg pain	.28			.26
Roland-Morris		<.0001		.24
SF-12 – physical			.011	.16
SF-12 mental			.001	.03

Limitations of the study

- **Missing observations**
 - Loss to follow-up
 - Missing data
- **Lag times in conducting interviews** – especially the baseline interview
- **Self-selection of participating employers**
 - Committed to disability management and providing job accommodations to facilitate returns to work
- Somewhat limited generalizability of results

What to do with high-risk cases?

- Recent research suggests interventions that emphasize returning to normal activities, including work, reduce long-term disability from back pain relative to usual care
 - Steenstra *Spine* May 2009
- Intervention involved worker, occupational health physician, worker's supervisor, and ergonomist implementing a return to work plan with appropriate accommodations
- Intervention was particularly effective for older workers and those who had been sick before – effectiveness of intervention was not correlated with gender, type of work, functional limitations, or pain

www.iwh.on.ca/highlights/workplace-program-speeds-rtw

Bouncing Back From Back Pain / Marjorie L. Baldwin, MD

Summary – Employment patterns

- Identify four common patterns of post-injury employment among workers who have filed claims for occupational back pain
 - Stable patterns:
 - no absence
 - return and stay
 - Unstable patterns:
 - multiple spells of absence
 - not yet returned

Summary – Self-reported severity measures

- Describe the nature and purpose of five common measures of the severity of back pain
 - Numerical ratings of the intensity of back/leg pain
 - Roland- Morris scale – functional limitations
 - SF-12 – overall mental/physical well-being
- Physical SF-12, Roland-Morris, and back pain intensity measures are highly correlated
- Mental SF-12 is only weakly correlated with other measures

Summary – Predictive validity of severity measures

- Compare the relative validity of the severity measures in predicting return to work outcomes in the first year after onset
 - Self-reported measures of the severity of back pain add significant predictive power to models of post-onset employment patterns.
 - Two quick and easy baseline measures of back and leg pain intensity are significant predictors of poor work outcomes up to twelve months after onset.
 - An injured worker's mental health has a significant impact on long-term employment outcomes that should not be overlooked.