



Factors predicting recovery patterns of back pain among injured workers

Cynthia Chen, Sheilah Hogg-Johnson,
Peter Smith, Dorcas Beaton

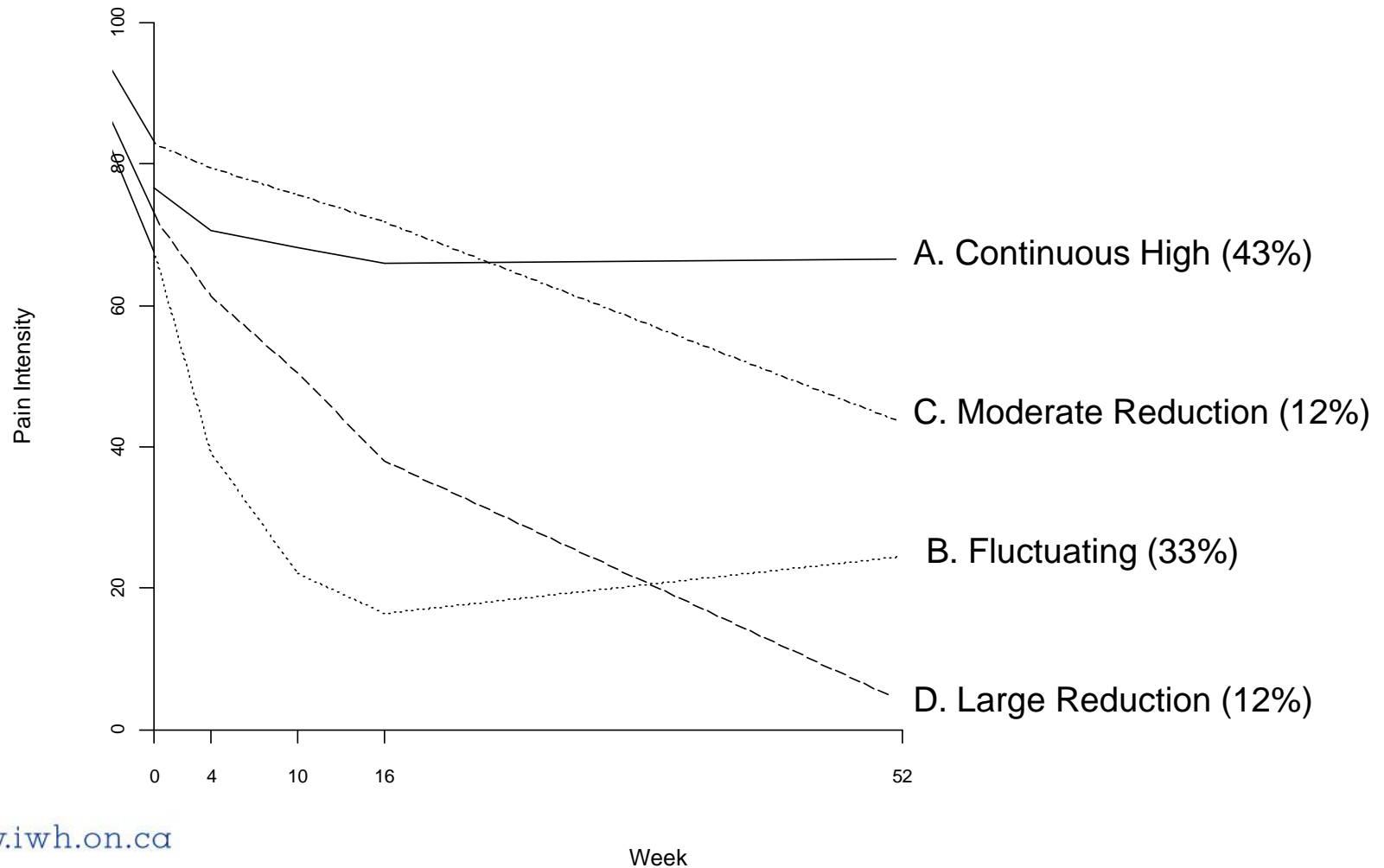


Background

- Low back pain is one of the most common, costly MSD problems
- It is the single largest category of workers' compensation claims
- The course of back pain is highly variable
- Four recovery patterns were identified using measure of pain intensity (Chen, et al. 2007)



Average pain intensity of pattern groups





Research question

- What are the factors predicting membership in each of these groups?
- How well variables routinely collected by compensation boards predict membership in each group?
- Is there any additional variables not routinely collected improving the prediction?



Sample

- a cohort of injured workers having lost-time claims with the Ontario Workplace Safety & Insurance Board (May-November, 1993)
- They were workers filing “new” claims for back injury (that is, not a reopened claim) and were still off work at the time of recruitment
- 678 subjects were classified into four recovery patterns
- Inclusion for this study
 - all respondents having complete data
N=479 (71% of respondents)
 - the exclusion did not change the distribution of patterns among respondents



Baseline Predictors (I)

- WSIB routinely collected variables
 - Age
 - Gender
 - Previous WSIB claims
 - Physical demand of jobs
 - Industry group
 - Firm size



Baseline Predictors (II)

- Descriptive variables
 - Marital status
 - Number of children in the household
 - Education level
 - Other health conditions

- Clinical variables
 - Frequency of pain
 - Nature of pain
 - Radiating pain ?
 - Recurrent pain ?
 - Roland-Morris Disability Score
 - SF36 Physical Function
 - SF36 Mental Health



Baseline Predictors (III)

- Extra variables
 - Being a sole earner in the family
 - Was a supervisor before injury
 - Return to work arrangement offered by the employer
 - Supervisor's reaction to the injury
 - Coworkers' reaction to the injury
 - Claim would affect jobs
 - Perceived risk of re-injury on return to regular job
 - Current status relative to expectations



Analytic Approach

Step 1: prognostic models of recovery patterns were examined with each group of predictors in turn, adjusting for age and gender .
(Criterion for selection : $p\text{-value} \leq 0.10$)

Step 2: A final model of the selected prognostic factors from Step 1 was fit to identify the most relevant predictors. (Criterion for selection: $p\text{-value} < 0.05$)

- Multinomial logistic regression was used in each step of modeling
- Validation of prediction using Bootstrapping method



Results (i)

--- Predictors from four individual models

WSIB routinely collected variables

❖ Age

Descriptive variables

❖ Education Levels

Clinical variables

❖ R-M Disability

❖ Nature of pain

Extra questionnaire variables

❖ Claim affect job?

❖ Current status relative
to expectations



Results (ii) --- Final model

Continuous high pain

Old age
High disability
Numbing, tingling pain
Current status not better than expectation

Moderate reduction in pain

Young age
High disability
Current status not better than expectation

Fluctuating pain

Young age
Low disability
Just pain, no numbing or tingling
Current status better than expectation

Large reduction in pain

Low disability
Current status better than expectation



Limitations

- Potential subjects excluded from our sample
- Sample size
- Old cohort

Strengths

- Broad range of variables
- Longitudinal design of the study
- Staged approach in the analysis



Conclusion

- Clinical features of back injuries were predictive of the recovery patterns from back pain
- Data routinely collected by the workers' compensation boards offered limited information regarding future recovery of injured workers' back pain
- When predicting recovery of compensated back injuries, these clinical predictors combined with workers' current status of recovery relative to their expectation will be useful for health practitioners and workers' compensation boards.



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