

Factors associated with risk of persistent disabling back pain: results from an interprofessional low back pain program

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Background and objectives

- Interprofessional models of care are increasingly being promoted for assessment and management of low back pain (LBP) at the primary care level
- These models can provide timely, evidence-based care: education, self-management support, and specialist consultation if indicated
- Interprofessional Spine Assessment and Educations Clinics (ISAEC) Low Back program in Ontario
 - Demonstrated reduced imaging costs and high patient satisfaction
- Long-term outcomes and their correlates are not well established

Objectives: Among patients participating in an interprofessional LBP program,

1. What factors are associated with risk of persistent disabling back pain, before and after participating in the program?
2. What factors predict improvement in risk of persistent disabling back pain?

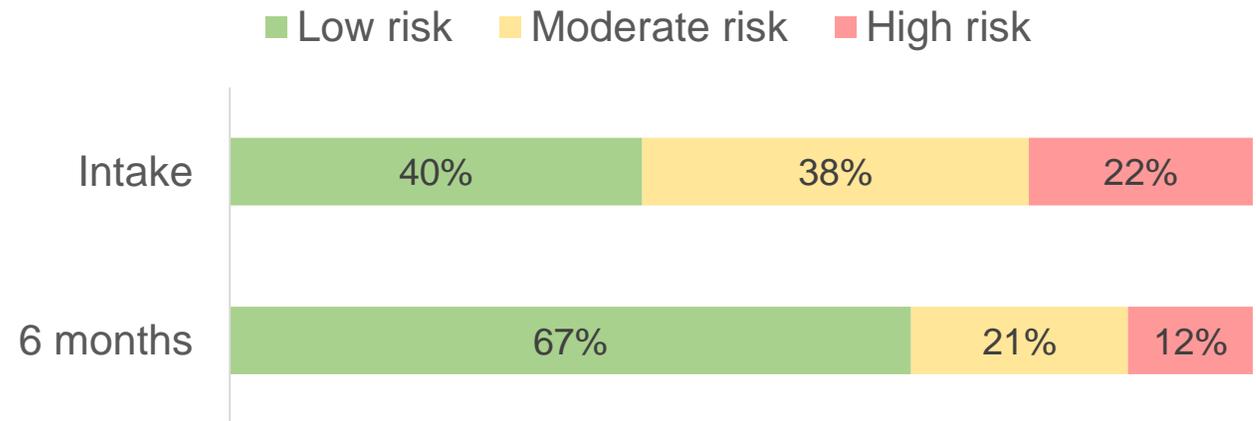
Methods

- Patient-reported data was prospectively collected before and 6 months after intake from participants in an interprofessional LBP program (www.isaec.org) focused on standardized assessment, education and self-management:
 - Demographic, physical/mental health, and back pain-related measures (e.g. numeric pain rating scale [NPRS], Oswestry Disability Index [ODI])
 - **Keele STarT Back Screening Tool (“STarT Back”)**: classifies respondent as low, moderate, or high risk of persistent disabling back pain
- Missing data was multiply imputed (20 imputed datasets); analysis results were pooled using Rubin’s rules
- **Objective 1:** STarT Back risk groups were bivariately compared on other factors
- **Objective 2:** Participants with moderate or high risk at intake were categorized as “improved” (low risk at follow-up) or “not improved” (remained at moderate or high risk)
 - Bivariate and multivariable methods were used to compare the “improved” and “not improved” groups on other factors

Results

- N=1330 with complete intake and follow-up data
- 58% female, mean age 52.5 years (SD 15.4)
- 60% had moderate/high risk of persistent disabling back pain at baseline
 - Among this group, **53% improved to low risk at 6 months**

STarT Back classification at intake and 6 month follow-up

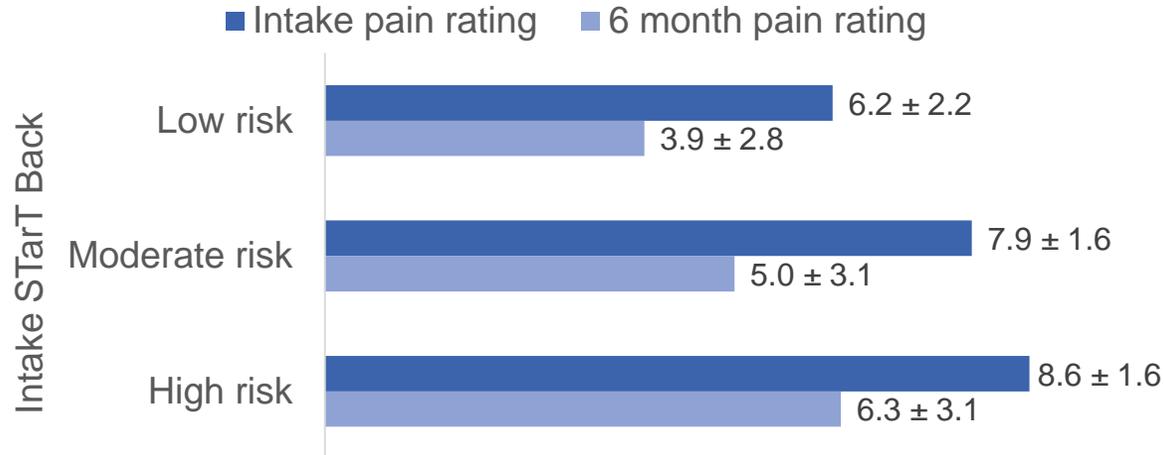


Increased risk of persistent disabling back pain at intake and follow-up sig. associated with:

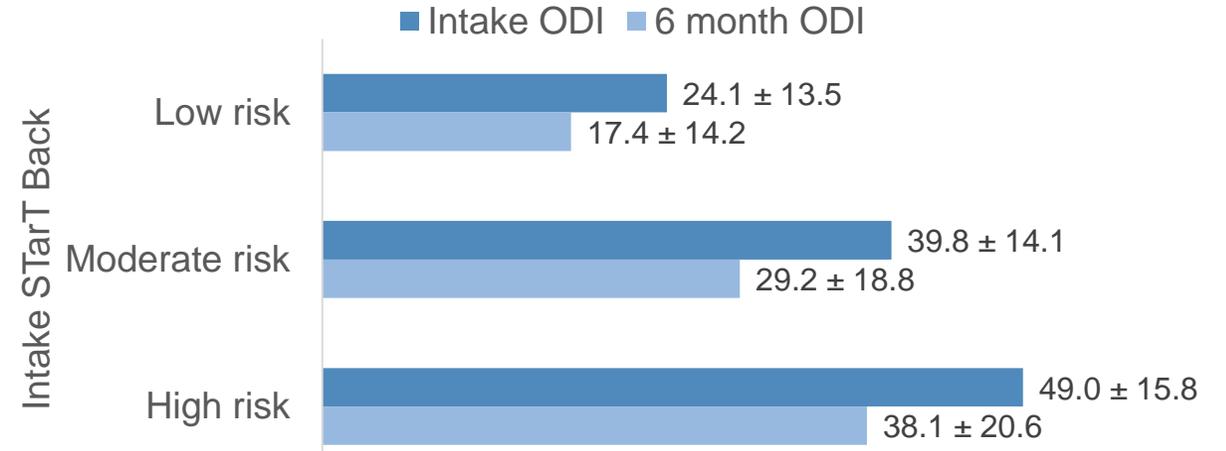
- **worse physical health:** obesity, comorbid conditions, smoking, opioid use, lower health-related quality of life
- **worse mental health:** depression and other mental health disorders, lower self-efficacy
- **increased pain and disability**

Results: STarT Back versus pain and disability

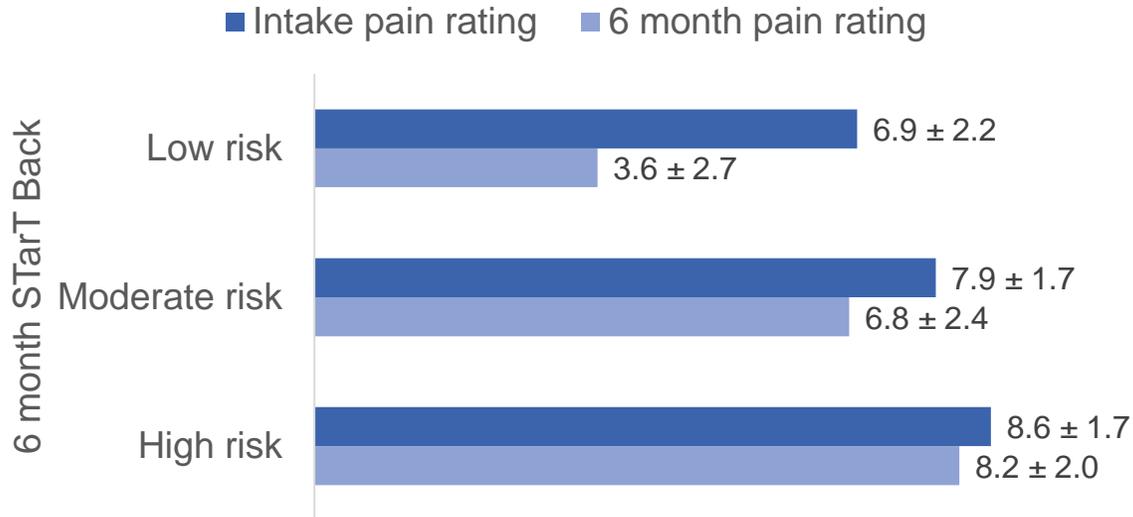
Intake STarT Back vs. numeric pain ratings



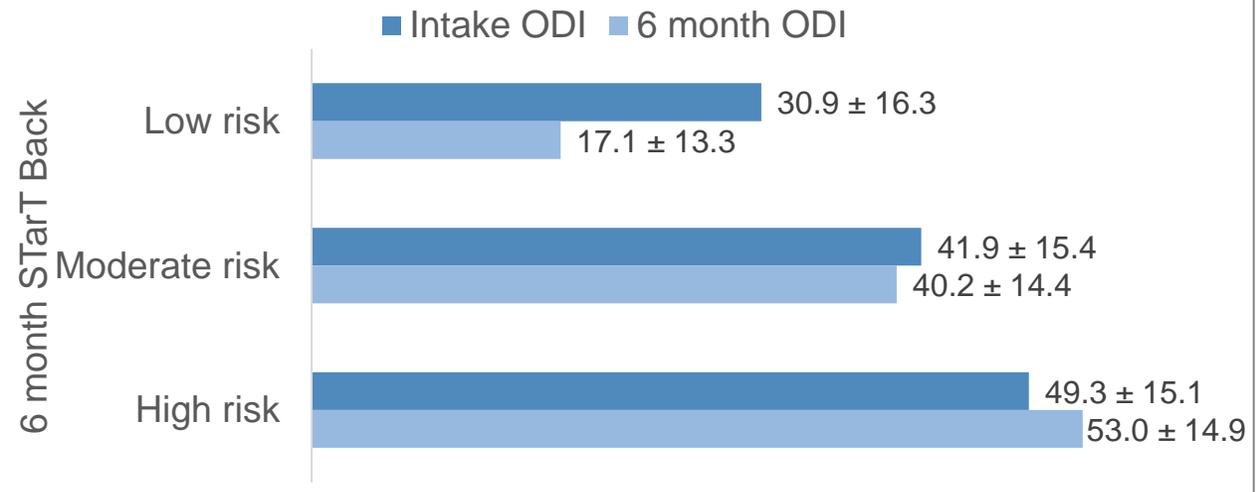
Intake STarT Back vs. Oswestry Disability Index



6 month STarT Back vs. numeric pain ratings



6 month STarT Back vs. Oswestry Disability Index



Results: predictors of improvement

- Bivariate analysis showed that several factors were associated with improvement to low risk at 6 months among participants with moderate/high risk at intake (N=793)
- Potential predictors were entered in multivariable logistic regression
- Independent predictors of improvement from regression:
 - Male sex
 - Shorter duration of back pain
 - Not currently smoking
 - Lower disability (ODI)
 - Higher self-efficacy (Self-Efficacy for Managing Chronic Disease)
 - Moderate versus high STarT Back risk at intake

Results: predictors of improvement (logistic regression)

Measure	Term	Odds ratio [95% CI]	P
(Intercept)	—	4.77 [1.26, 18.11]	0.022*
Age	(per year)	1.00 [0.99, 1.01]	0.754
Sex (<i>ref: male</i>)	Female	0.72 [0.52, 0.99]	0.047*
Body-mass index category (<i>ref: normal [< 25]</i>)	Overweight (25-29.9)	1.00 [0.64, 1.57]	0.987
	Obese (30+)	0.71 [0.46, 1.08]	0.112
Ethnicity (<i>ref: White</i>)	Non-white	0.75 [0.48, 1.17]	0.205
Duration of back/leg pain (<i>ref: < 6 months</i>)	6+ months	0.51 [0.37, 0.71]	$< 0.001^*$
Narcotic use (<i>ref: no narcotic use reported</i>)	Any narcotic use	0.85 [0.60, 1.21]	0.371
Labor force participation (<i>ref: Working, modified duties, student, retired, or other</i>)	Not employed or on disability	0.67 [0.43, 1.03]	0.067
Leisure exercise frequency (<i>ref: less than once per week</i>)	2+ times/week	1.09 [0.78, 1.54]	0.611
Comorbidities (<i>ref: no comorbid conditions</i>)	1 or 2 conditions	0.69 [0.47, 1.00]	0.052
	3 or more conditions	0.66 [0.41, 1.06]	0.087
Smoking status (<i>ref: nonsmoker or former smoker</i>)	Current smoker	0.55 [0.36, 0.84]	0.006*
Baseline pain rating (0-10)	(per point)	0.93 [0.83, 1.03]	0.180
Baseline ODI (0-100)	(per point)	0.99 [0.97, 1.00]	0.036*
Baseline self-efficacy score (1-10)	(per point)	1.22 [1.10, 1.36]	$< 0.001^*$
Baseline STarT Back category (<i>ref: Moderate risk</i>)	High risk	0.67 [0.47, 0.95]	0.024*

Conclusions

- Chronic LBP patients can achieve substantial improvement in risk of persistent disabling back pain in an integrated interprofessional LBP program that provides active education and self-management support
- Further benefit may be achieved by targeting modifiable factors such as smoking and self-efficacy
- Patients with the highest risk of persistent disabling back pain may need additional supports to attain adequate improvement