**Participant Flow**

Enrollment

Analysed (n=361)

Analysed (n=367)

Assessed for eligibility (n=802)

Allocated to intervention (n=367)

* Job attached (n=242)
* Non-job attached (n=125)

Allocated to control (n=361)

* Job attached (n=287)
* Non-job attached (n=74)

Allocation

Lost to follow-up (n=0)

Discontinued intervention (n=0)

Lost to follow-up (n=0)

Discontinued intervention (n=0)

Analysis

Follow-Up

Excluded (n=74)

* Co-morbid conditions interfering with rehabilitation (n=12)
* Discharged due to non-compensable medical reasons or non-compliance with program (n=32)
* Attended program < 5 days (n=30)

**Baseline Characteristics**

Randomized (to clusters)

n= 728

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Characteristics of Claimants at Referral for Return-to-Work Program** | | | | | |
|  |  | Entire | Intervention | Control |  |
|  |  | Sample | Group | Group |  |
|  |  | (n=728) | (n=367) | (n=361) |  |
|  | *Mean (SD) or Percent* | | | | |
| Employed at time of referral\* | | 72.7 | 65.9 | 79.5 |  |
|  |  |  |  |  |  |
| Age (years) |  | 45 (12.2) | 44 (12.0) | 46 (12.3) |  |
|  |  |  |  |  |  |
| Sex (% male) |  | 63.2 | 66.5 | 59.8 |  |
|  |  |  |  |  |  |
| Marital Status (%) |  |  |  |  |  |
| Married |  | 39.6 | 37.6 | 41.6 |  |
| Single |  | 29.4 | 30.2 | 28.5 |  |
| Common-law |  | 10.0 | 9.3 | 10.8 |  |
| Widowed |  | 1.4 | 1.4 | 1.4 |  |
| Divorced |  | 6.7 | 6.8 | 6.6 |  |
| Separated |  | 3.6 | 4.1 | 3.0 |  |
| Not specified |  | 9.3 | 10.6 | 8.0 |  |
|  |  |  |  |  |  |
| Gross annual salary |  | 59.8 (30.2) | 61.4 (30.7) | 58.1 (29.6) |  |
| ($10 k CDN) |  |  |  |  |  |
| Education level |  |  |  |  |  |
| Grade 8 or less |  | 3.8 | 3.8 | 3.9 |  |
| Partial high school |  | 14.0 | 13.9 | 14.1 |  |
| High school diploma |  | 24.7 | 23.4 | 26 |  |
| Partial technical school |  | 9.2 | 8.7 | 9.7 |  |
| Technical diploma |  | 19.1 | 20.4 | 17.7 |  |
| Partial university |  | 3.8 | 3.5 | 4.2 |  |
| University degree |  | 7.0 | 6.5 | 7.5 |  |
| Not specified |  | 18.3 | 19.6 | 16.9 |  |
|  |  |  |  |  |  |
| Disability Duration (Days) |  | 233.7 (688.0) | 257.0 (721.8) | 209.8 (652.1) |  |
|  |  |  |  |  |  |
| Admission Pain Disability Index (PDI, n=719) |  | 48.4 (21.0) | 49.1 (20.2) | 47.6 (2.2) |  |
| Discharge PDI (n=624) |  | 34.5 (23.4) | 35.4 (23.5) | 33.6 (2.3) |  |
| Admission Pain Visual Analogue Scale (VAS, n=713) |  | 5.0 (2.2) | 5.1 (2.1) | 4.9 (2.2) |  |
| Discharge VAS (n=608) |  | 3.8 (2.4) | 3.9 (2.5) | 3.7 (2.3) |  |
| \* *Statistically significant difference at p < 0.01.* | | |  |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Characteristics of Non-Job Attached Claimants at Referral for Return-to-Work Program** | | | | |  |
|  | Entire | Intervention | Control |  |  |
|  | Sample | Group | Group |  |  |
|  | (n=199) | (n=125) | (n=74) |  |  |
|  | *Mean (SD) or Percent* | | | |  |
| Age (years) | 43 (12.4) | 43 (12.3) | 43 (12.7) |  |  |
|  |  |  |  |  |  |
| Sex (% male) | 80.4 | 78.4 | 83.8 |  |  |
|  |  |  |  |  |  |
| Marital Status (%) |  |  |  |  |  |
| Married | 26.1 | 25.6 | 27.0 |  |  |
| Single | 33.7 | 36.0 | 29.7 |  |  |
| Common-law | 13.1 | 12.8 | 13.5 |  |  |
| Widowed | 1.5 | 0.8 | 2.7 |  |  |
| Divorced | 8.5 | 10.4 | 5.4 |  |  |
| Separated | 6.5 | 4.8 | 9.5 |  |  |
| Not Specified | 10.6 | 9.6 | 12.2 |  |  |
|  |  |  |  |  |  |
| Gross annual salary | 69.6 (35.4) | 70.6 (34.8) | 68.0 (36.6) |  |  |
| ($10 k CDN) |  |  |  |  |  |
|  |  |  |  |  |  |
| Education level |  |  |  |  |  |
| Grade 8 or less | 6.0 | 7.2 | 4.1 |  |  |
| Partial high school | 15.6 | 18.4 | 10.8 |  |  |
| High school diploma | 25.1 | 23.2 | 28.4 |  |  |
| Partial technical school | 8.0 | 4.8 | 13.5 |  |  |
| Technical diploma | 20.1 | 24.8 | 12.2 |  |  |
| Partial university | 4.5 | 3.2 | 6.8 |  |  |
| University degree | 2.5 | 1.6 | 4.1 |  |  |
| Not specified | 18.1 | 16.8 | 20.3 |  |  |
|  |  |  |  |  |  |
| Disability Duration (Days) | 481.8 (1250.1) | 471.9 (1170.0) | 498.6 (1383.3) |  |  |
|  |  |  |  |  |  |
| Admission Pain Disability Index (PDI, n=195) | 52.0 (21.3) | 53.2 (21.1) | 49.9 (21.6) |  |  |
| Discharge PDI (n= 159) | 43.2 (24.8) | 42.1 (24.4) | 45.4 (25.6) |  |  |
| Admission Visual Analogue Scale (VAS, n=194) | 5.1 (2.2) | 5.2 (2.2) | 4.9 (2.2) |  |  |
| Discharge VAS (n=155) | 4.5 (2.5) | 4.4 (2.6) | 4.6 (2.4) |  |  |
| *There were no statistically significant differences observed between groups at p < 0.05.* | | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Characteristics of Job Attached Claimants at Referral for Return-to-Work Program** | | | | |
|  | Entire | Intervention | Control |  |
|  | Sample | Group | Group |  |
|  | (n=529) | (n=242) | (n=287) |  |
|  | *Mean (SD) or Percent* | | | |
| Age (years) | 45 (12.0) | 44 (11.8) | 46 (12.2) |  |
|  |  |  |  |  |
| Sex (% male) | 56.7 | 60.3 | 53.7 |  |
|  |  |  |  |  |
| Marital Status (%) |  |  |  |  |
| Married | 44.6 | 43.8 | 45.3 |  |
| Single | 27.8 | 27.3 | 28.2 |  |
| Common-law | 8.9 | 7.4 | 10.1 |  |
| Widowed | 1.3 | 1.7 | 1.0 |  |
| Divorced | 6.0 | 5.0 | 7.0 |  |
| Separated | 2.5 | 3.7 | 1.4 |  |
| Not specified | 8.9 | 11.2 | 7.0 |  |
|  |  |  |  |  |
| Gross annual salary | 55.7 (26.7) | 56.2 (26.9) | 55.3 (26.7) |  |
| ($10 k CDN) |  |  |  |  |
|  |  |  |  |  |
| Education level |  |  |  |  |
| Grade 8 or less | 3.0 | 2.1 | 3.8 |  |
| Partial high school | 13.4 | 11.6 | 15.0 |  |
| High school diploma | 24.6 | 23.6 | 25.4 |  |
| Partial technical school | 9.6 | 10.7 | 8.7 |  |
| Technical diploma | 18.7 | 18.2 | 9.2 |  |
| Partial university | 3.6 | 3.7 | 3.5 |  |
| University degree | 8.7 | 9.1 | 8.4 |  |
| Not specified | 18.3 | 21.1 | 16 |  |
|  |  |  |  |  |
| Disability Duration (Days) | 140.3 (183.8) | 135.3 (140.2) | 146.2 (225.0) |  |
|  |  |  |  |  |
| Admission Pain Disability Index (PDI, n=524) | 47.0 (20.6) | 47.1 (19.4) | 47.0 (21.6) |  |
| Discharge PDI (n=465) | 31.5 (22.1) | 32.1 (22.3) | 31.1 (21.9) |  |
| Admission Visual Analogue Scale (VAS, n=519) | 5.0 (2.2) | 5.0 (2.1) | 4.9 (2.2) |  |
| Discharge VAS (n=453) | 3.6 (2.3) | 3.6 (2.4) | 3.5 (2.3) |  |

*There were no statistically significant differences observed between groups at p < 0.05.*

**Characteristics of Claimants Undergoing Occupational Rehabilitation**

**Entire Job Attached Workers Non-Job Attached Workers**

**Sample** *Motivational Control Motivational Control*

*Interviewing Group Interviewing Group*

*Group Group*

(n = 728) (n = 242)(n = 287) (n=125) (n=74)

*Mean (Std Dev) or n (Percent)*

Age (Years)\* 44.6 (12.2) 44.0 (11.8) 46.0 (12.2) 43.1 (12.3) 43.5 (12.7)

Accident to Admission (Days) 233.7 (688.0) 146.2 (225.0) 135.2 (140.3) 471.9 (1170) 498.6 (1383) Median = 107 Median = 100 Median = 94 Median = 181 Median = 169

Gross Annual Salary ($10k CDN, n = 661)\* 59.8 (30.2) 56.2 (26.9) 55.3 (26.7) 70.6 (34.8) 68.0 (36.6)

Number of previous injury claims 4.3 (5.8) 4.4 (5.8) 4.4 (5.6) 3.7 (5.5) 4.5 (6.5)

Sex (% Male)\* 460 (63.2) 60.3 53.7 78.4 83.8

Language (% English) 698 (95.9) 93.8 96.2 98.4 97.3

Education Level

Grade 8 or less 28 (3.8) 2.1 3.8 7.2 4.1

Partial High School 102 (14.0) 11.6 15.0 18.4 10.8

High School Diploma 180 (24.7) 23.6 25.4 23.2 28.3

Partial Technical School 67 (9.2) 10.7 8.7 4.8 13.5

Technical Diploma 139 (19.1) 18.2 19.2 24.8 12.2

Partial University 28 (3.8) 3.7 3.5 3.2 6.8

University Degree 51 (7.0) 9.1 8.4 1.6 4.1

Not specified 133 (18.3) 21.1 16.0 16.8 20.3

Receiving Wage Replacement Benefits at

Admission to Program (% Yes)

Total Temporary Benefits\* 427 (41.3) 24.0 27.5 79.2 87.8

Partial Temporary Benefits\* 244 (33.5) 45.9 39.7 11.2 6.8

Vocational retraining allowance\* 4 (0.5) 0 0 3.2 0

None\* 179 (24.6) 30.2 32.8 6.4 5.4

Marital Status\*

Married/ Common Law 361 (49.6) 51.2 55.4 38.4 40.5

Single 214 (29.4) 27.3 28.2 36.0 29.7

Divorced/ Separated 75 (10.3) 8.7 8.4 15.2 14.9

Widowed 10 (1.4) 1.7 1.0 0.8 2.7

Not specified 68 (9.3) 11.2 7.0 9.6 12.2

Diagnosis\*

Joint Disorders 322 (44.2) 48.3 46.7 35.2 36.5

Sprain/Strain 184 (25.3) 22.3 26.5 27.2 27.0

Fracture 82 (11.3) 8.7 11.1 13.6 16.2

Contusion 52 (7.1) 5.8 7.7 9.6 5.4

Dislocation 22 (3.0) 3.3 2.1 3.2 5.4

Laceration 12 (1.6) 1.2 1.0 2.4 4.1

Nerve Damage 25 (3.4) 5.0 2.8 4.0 0

Other 29 (4.0) 5.4 2.1 4.8 5.4

Part of Body

Upper extremity 199 (27.3) 22.3 30.3 29.6 28.4

Lower extremity 145 (19.9) 18.2 19.9 19.2 27.0

Back/ Trunk/ Torso 235 (32.3) 36.0 30.3 32.8 28.5

Neck 46 (6.3) 6.2 7.7 4.0 5.4

Other/ Multiple body parts 103 (14.1) 17.4 11.9 14.4 10.9

National Occupational Classification\*

Management 12 (1.6) 2.9 1.7 0 0

Business, Finance and Admin   46 (6.3) 7.9 7.3 2.4 4.1

Natural and Applied Sciences   12 (1.6) 2.1 1.0 1.6 2.7

Health Occupations   82 (11.3) 12.4 15.3 5.6 1.4

Education, Government, etc. 32 (4.4) 5.8 4.5 2.4 2.7

Sales and Service   126 (17.3) 19.8 19.9 8.8 13.5

Trades and Transport   352 (48.4) 41.3 42.2 68.8 60.8

Natural Resources and Agriculture  30 (4.1) 1.7 3.5 6.4 10.8

Manufacturing and Utilities 34 (4.7) 5.4 4.5 4.0 4.1

*Scores on Self-Report Clinical Outcomes (n = 684)*

Pain Visual Analogue Scale (out of 10) 5.0 (2.2) 5.0 (2.1) 4.9 (2.2) 5.2 (2.1) 4.9 (2.1)

Percent Pain Disability Index\* 48.2 (2.1) 47.1 (19.5) 46.8 (21.6) 53.1 (20.4) 49.9 (22.0)

Short-Form 36 Questionnaire (out of 100)

Domain Subscale Scores

Physical Function 50.9 (24.2) 49.8 (24.5) 52.0 (23.9) 49.8 (24.3) 51.6 (24.4)

Role Physical\* 28.4 (23.4) 27.7 (22.5) 31.2 (24.4) 25.4 (22.4) 24.2 (23.3)

Bodily Pain# 26.9 (18.8) 24.4 (17.7) 28.4 (19.9) 27.9 (18.3) 27.0 (18.1)

General Health\* 64.7 (18.8) 66.8 (19.1) 65.6 (18.4) 59.8 (18.4) 61.7 (18.9)

Vitality\* 46.7 (19.7) 47.0 (19.2) 49.0 (19.6) 42.7 (20.8) 42.7 (18.7)

Social Function\* 50.1 (26.3) 51.5 (24.9) 53.5 (27.4) 44.0 (25.9) 42.4 (23.5)

Role Emotional\* 53.4 (32.6) 54.8 (32.0) 55.6 (33.2) 50.5 (32.4) 44.6 (30.9)

Mental Health\* 59.4(21.4) 60.7 (20.4) 63.0 (20.7) 53.2 (23.0) 51.2 (20.1)

SF36 Physical Health Composite Score 33.6 (8.1) 33.0 (8.1) 33.8 (7.7) 33.4 (8.9) 34.7 (8.5)

Sf36 Mental Health Composite Score\* 40.5 (12.7) 41.7 (12.3) 42.3 (12.2) 37.1 (13.7) 35.3 (11.9)

\* *Statistically significant difference observed between job attached and non-job attached claimants regardless of intervention group status (p < 0.05).*

*# Statistically significant difference observed between intervention and control groups tested within between job attached and non-job attached groups (p < 0.05).*

**Outcome Measures**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Motivational Interviewing (MI) Adherence Among Intervention Clinicians** | | | | |
| Clinician | Claimants During Study  (n) | Claimants MI Completed With (%) | | MI Session Duration  (minutes) |
| 1 | 72 | 5 | | 10-30 |
| 2 | 71 | 56 | | 15-20 |
| 3 | 65 | 8 | | 10-30 |
| 4 | 64 | 17 | | 10-45 |
| 5 | 47 | 4 | | 15-50 |
| 6 | 48 | 6 | | 30-40 |
| Target Behaviours |  |  | | % Target  Behaviour |
| RTW/finding new employment | | | 75 | | |
| (i.e. modified work, vocational programs) | | |  | | |
| Continue with/participate in RTW program | | | 18 | | |
| (i.e. lifting, educational workshops, individual counselling | | |  | | |
| Make healthier choices | | | 5 | | |
| (i.e. stop smoking, decrease medication use | | |  | | |
| control blood pressure, deal with personal issues) | | |  | | |
| Return to regular life/sport/physical activity | | | 2 | | |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Rehabilitation Program Outcomes** | | | | | | | |
|  |  |  |  | Program Outcome | |  |  |
| **Non-Job Attached** | | |  | RTW | FFW | Total |  |
| MI Intervention Variable | | Control Group | Count | 7 | 67 | 74 |  |
|  |  |  | % within MI |  |  |  |  |
|  |  |  | Intervention | 9.5 | 90.5 | 100 |  |
|  |  |  | Variable |  |  |  |  |
|  |  | MI Group | Count | 27 | 98 | 125 |  |
|  |  |  | % within MI |  |  |  |  |
|  |  |  | Intervention | 21.6\* | 78.4 | 100 |  |
|  |  |  | Variable |  |  |  |  |
| Total |  |  | Count | 34 | 165 | 199 |  |
|  |  |  | % within MI |  |  |  |  |
|  |  |  | Intervention | 17.1 | 82.9 | 100 |  |
|  |  |  | Variable |  |  |  |  |
|  |  |  |  | Program Outcome | |  |  |
| **Job Attached** | |  |  | RTW | FFW | Total |  |
| MI Intervention Variable | | Control Group | Count | 270 | 17 | 287 |  |
|  |  |  | % within MI |  |  |  |  |
|  |  |  | Intervention | 94.1 | 5.9 | 100 |  |
|  |  |  | Variable |  |  |  |  |
|  |  | MI Group | Count | 235 | 7 | 242 |  |
|  |  |  | % within MI |  |  |  |  |
|  |  |  | Intervention | 97.1 | 2.9 | 100 |  |
|  |  |  | Variable |  |  |  |  |
| Total |  |  | Count | 505 | 24 | 529 |  |
|  |  |  | % within MI |  |  |  |  |
|  |  |  | Intervention | 95.5 | 4.5 | 100 |  |
|  |  |  | Variable |  |  |  |  |

*\* Statistically significant difference on chi squared test (p = 0.03).*

Abbreviations: MI = Motivational Interviewing

RTW = Return to Work (ie. confirmed outcome at program discharge that the worker is returning to work either at the pre-accident job or work with a new employer),

FFW = Fit for Work (ie. worker has been deemed capable of working at program discharge but does not have a job to return to)

**Comparison of Claims Outcomes Between Groups**

**Job Attached Workers Non-Job Attached Workers**

*Motivational Control Motivational Control*

*Interviewing Group Group Interviewing Group Group*

(n = 242)(n = 287) (n=125) (n=74)

**Claims Outcomes Following Program Discharge** *Mean (Std Dev) or n (Percent)*

Number of Days in Follow-up Year Receiving:

Any Type of Wage Replacement 31.9 (74.4) 25.3 (69.8) 89.3 (108.9) 84.4 (112.3) Total Temporary Benefits 8.6 (37.4) 8.0 (35.2) 31.1 (74.4) 23.2 (65.7)

Partial Temporary Benefits# 14.4 (45.9) 13.9 (44.4) 8.2 (28.1) 0.2 (1.5)

Career Planning Allowance 2.1 (9.9) 0.8 (5.8) 4.7 (13.7) 3.8 (12.4)

Retraining Allowance 3.3 (20.7) 1.4 (10.9) 16.5 (45.1) 23.6 (56.3)

Job Search Allowance\* 3.1 (13.6) 1.0 (7.9) 27.4 (42.3) 30.8 (43.3)

Academic Short-term Wage Loss Benefit 0.5 (4.2) 0.2 (2.1) 1.3 (5.2) 2.7 (14.0)

Recurrence of Benefits in Follow-up Year

Any Type of Wage Replacement\* 4.5 9.1 11.2 9 (12.2) Total Temporary Benefits 1.7 1.4 8.8 7 (9.5)

Partial Temporary Benefits\* 2.9 7.7 1.6 0 (0)

Career Planning Allowance 0 (0) 0 (0) 0.8 2 (2.7)

Retraining Allowance 0 (0) 0 (0) 0 (0) 0 (0)

Academic Short-term Wage Loss Benefit 0 (0) 0 (0) 0 (0) 0 (0)

Job Search Allowance 00 (0) 0 (0) 0 (0) 0 (0)

\* *Indicates statistically significant difference between control and intervention groups within job attached workers (p<0.05)*

*# Indicates statistically significant difference between control and intervention groups within non-job attached workers (p<0.05)*

**Multivariable Logistic Regression Analysis**

**Variable Outcome**

*Job Attached Claimants Any Wage Replacement Benefit Recurrence*

Crude OR (95% CI) Adjusted\* OR (95% CI)

Motivational Interviewing 1.0 1.0

Control group 2.09 (1.01 – 4.33) 2.01 (0.96 – 4.21)

*Partial Temporary Disability Recurrence*

Crude OR (95% CI) Adjusted\* OR (95% CI)

Motivational Interviewing 1.0 1.0

Control group 2.79 (1.17 – 6.64) 2.69 (1.12 – 6.46)

*Non-Job Attached Claimants Days Receiving Partial Temporary Disability*

Crude Regression Coefficient (95% CI) Adjusted\* Regression Coefficient (95% CI)

Intervention Variable 0.17 (0.03 – 0.31) 0.15 (0.01 – 0.30)

*Days Receiving Academic Short-term Wage Loss Benefits*

Crude Regression Coefficient (95% CI) Adjusted\* Regression Coefficient (95% CI)

Intervention Variable 0.10 (0.01 – 0.18) -0.07 (-0.21 – 0.07)

\* Adjusted for age, sex, number of previous claims, pre-injury annual salary, self-rated disability and pain intensity.

**Adverse Events**

There were no adverse events associated with this trial.