

Cost, Effectiveness, and Cost-Effectiveness of a Collaborative Mental Health Care Program for People Receiving Short-Term Disability Benefits for Psychiatric Disorders

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Objective: To examine the cost, effectiveness, and cost-effectiveness of a collaborative mental health care (CMHC) pilot program for people on short-term disability leave for psychiatric disorders.

Method: Using a quasi-experimental design, the analyses were conducted using 2 groups of subjects who received short-term disability benefits for psychiatric disorders. One group ($n = 75$) was treated in a CMHC program during their disability episode. The comparison group ($n = 51$) received short-term disability benefits related to psychiatric disorders in the prior year but did not receive CMHC during their disability episode. People in both groups met screening criteria for the CMHC program. Differences in cost and days absent from work were tested using Student t tests and confirmed using nonparametric Wilcoxon rank sum tests. Differences in return to work and transition to long-term disability leave were tested using chi-square tests. The cost-effectiveness analysis used the net benefit regression framework.

Results: The results suggest that with CMHC, for every 100 people on short-term disability leave for psychiatric disorders, there could be \$50 000 in savings related to disability benefits along with more people returning to work ($n = 23$), less people transitioning to long-term disability leave ($n = 24$), and 1600 more workdays.

Conclusions: CMHC models of disability management based on our Canadian data may be a worthwhile investment in helping people who are receiving short-term disability benefits for psychiatric disorders to receive adequate treatment.

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Clinical Implications

- CMHC initiatives with the workplace could have an important impact on mental health-related disability leave.
- CMHC initiatives may be more cost-effective than independent medical examinations for addressing workplace short-term disability leave related to psychiatric illness.
- CMHC initiatives may decrease long-term disability leave rates through more timely access to specialty treatment.

Limitations

- The cost-effectiveness analyses were done from the employer's perspective. However, there are other costs not incurred by the employer (for example, costs covered by the public health care system) that are not included in this analysis.
- This was a cost-effectiveness analysis of one type of CMHC model. Although it looked at the program for a year, a next step is to understand the generalizability of the results in other business sectors and other types of disability management models. In addition, a randomized controlled trial could enhance understanding the generalizability of the results.
- This study focused on the most severe group of people receiving disability benefits. It would also be important to examine whether the same types of results could be expected for people with less severe cases who go on to receive disability benefits.

Key Words: *work disability, collaborative mental health care, cost-effectiveness analysis, net benefit regression*

Annually, about 10% of the working population has a mental disorder.¹ It has been estimated that productivity losses related to mental illness are about \$17.7 billion annually.² The large economic burden related to mental illness has made it a prime concern for Canada and many industrialized countries.³

At the same time, there is evidence for the effectiveness and cost-effectiveness of interventions for psychiatric disorders (for example, see reviews⁴⁻⁷ of depression treatment); these estimates suggest attention to the mental health of the workforce may be warranted. Currently, there are challenges to ensuring these effective psychiatric treatments are accessible.

Part of the barrier to accessing effective treatment lies within the health care system, in which there is often fragmentation between types of providers. The primary care setting occupies a strategic position in the management of depression and other mental disorders around the world.^{8,9} In addition, it has been observed that a large proportion of people with a short-term disability associated with psychiatric disorders are treated by primary care physicians.¹⁰ However, there is also a substantial body of literature suggesting that many people receiving care in the primary care setting do not receive adequate treatment for mental disorders for various reasons, including limited time in primary care practices and less expertise with effective treatments for psychiatric disorders.¹¹⁻¹⁷ The consultation-liaison CMHC model for primary and secondary care physicians has been proposed as a solution to improve the quality of mental health care by extending the availability of specialty mental health resources in primary care settings, enhancing communication and promoting continuity and follow-up care.¹⁸ There is evidence that indicates collaboration between primary and secondary care providers is effective.¹⁹ In fact, Katon and Unutzer²⁰ assert the evidence from RCTs is sufficient. However, they assert that the remaining challenge is not to validate the effectiveness of this approach but to understand how the research evidence effectively can be translated into practice. Moreover, Gilbody et al¹⁹ also suggest that more evidence gathered from a context outside the United States is needed.

Our purpose is to study the cost, effectiveness, and cost-effectiveness of a CMHC program designed to promote

access to specialty care for people on short-term disability leave for psychiatric disorders. It is one of the first Canadian cost-effectiveness evaluations of a CMHC model for this population.

Background

Although the mental health of the working population has become a global concern, one of the barriers to progress for this issue is the dearth of evidence about effectiveness or cost-effectiveness of mental health programs for the workplace.²¹ That is, although we know there are effective treatments, there is less evidence about how to effectively deliver them to workers.

It is clear that people receiving short-term disability benefits for psychiatric disorders are not a homogenous group. In fact, it has been observed that there is variation in the symptom severity and treatment needs of people on disability leave. In addition, there is a subgroup requiring relatively more complex treatment and having more difficulty returning to work after a short-term disability episode.²²

One of the challenges to ensuring this group receives treatment is that the disability management and the health care systems are fragmented. Indeed, Mortlemans et al²³ identified a need for increased research focusing on information asymmetry and disability outcomes in the disability management process. They define information asymmetry as, “a situation in which critical information is not or not appropriately exchanged between all stakeholders involved in disability management.”^{p 495}

Part of the rift is generated by providers, participating in the care of a worker receiving disability benefits, paid through different mechanisms—physicians through the health care system and occupational health workers through the employer. As a result, incentives are not aligned. There is little incentive for collaboration between the health care sector and the disability management provider. As in any shared care or collaborative care model, the systems must signal they value collaboration by reimbursing for consultations and providing safeguards to allow consultations to occur between sectors.²⁴

In an attempt to bridge the gaps between the various providers involved in a disability episode related to psychiatric disorders, a demonstration project was conducted. A CMHC program was established between June 2006 and May 2007 in a large financial–insurance sector company. The company (Company A) has a nationwide employee base of 35 000 people. Annually, 9% of employees ($n = 3200$) receive short-term disability benefits; about 16.5% of all short-term disability leave ($n = 527$) is related to psychiatric disorders.

Abbreviations used in this article

CMHC	collaborative mental health care
IME	independent medical evaluation
RCT	randomized controlled trial

Company A has had a stable supplemental benefit structure for the past 5 years, such that the disability benefits have remained constant. In addition, during that period, there have been no major organizational changes.

Usual Disability Case Management for Psychiatric Disorders

For the past 5 years, Company A's disability claims have been managed by a case manager using a process focusing on maintaining regular contact with the absent employee, ensuring appropriate and early treatment, and developing long-term proactive strategies to prevent recurrence. One of the critical components of the process is verifying the presence of objective medical evidence to support an absence. When the latter aspect is not clear, an IME is sought. The IME is referred to an objective third party psychiatrist who has not had previous contact with either the employee or their attending physician. Criteria for an IME include:

1. Multiple diagnoses on the disability claims form.
2. A lack of an objective finding (that is, a clear diagnosis was not provided).
3. The attending physician does not return the case manager's phone calls.
4. The return-to-work date is repeatedly postponed.
5. The employee has previous claims.
6. The employee is not under the care of a psychiatrist.

Over time, case managers observed that cases requiring an IME were associated with relatively longer lengths of disability leave.

Once the diagnosis and severity of the disorder is established, in usual practice the employee's primary care physician continues to treat the employee until the employee returns to work. The employee is referred to a psychiatrist at the discretion of the primary care physician.

Enhanced Case Management Incorporating CMHC

In response to the longer disability leaves of employees requiring IMEs, the demonstration program—referred to in this paper as the CMHC program—was implemented. The purpose of the program was to decrease the length of disability leave by ensuring adequate health care for the psychiatric disorder was provided. The demonstration program targeted people who either:

1. Had disability leave related to a psychiatric disorder.
2. Had a prior history of psychiatric illness as evidenced by prior disability leave or family history but did not have disability leave in the year before the demonstration project's implementation.
3. Were not under the care of a psychiatrist (that is, the attending physician was a general practitioner).

4. Did not have a terminal illness and would have been referred for an IME under usual disability management practices.

The demonstration project introduced an enhanced disability management process by adding a CMHC component delivered by psychiatrists. The program's structure was based on collaborative care concepts²⁵ including psychiatric assessment, short-term management by the psychiatrist, psychiatric support of management by the primary care physician, and the availability of psychiatric consultation for nonreferred workers.

The collaborative care concepts were operationalized in the disability management process through the following process. People on short-term disability leave with identified mental health problems who met the criteria for an IME were referred to a CMHC psychiatrist. This psychiatrist used a standardized assessment package to evaluate the severity of the disability. With the employee's consent, the CMHC psychiatrist contacted the employee's family physician to discuss the diagnosis and to make treatment recommendations based on the assessment. The attending primary care physician had the option of referring the employee to one of the CMHC consulting psychiatrists for direct treatment through the public health care system. If the employee was referred for treatment, the consulting CMHC physician would provide 2 to 4 sessions with the goal of returning the employee to the care of the primary care physician as soon as possible.

As opposed to the traditional IME that is used simply to adjudicate the claim, the IME for the CMHC program was used simultaneously to adjudicate the claim and to enable the CMHC psychiatrist to consult with the attending primary care physician. Thus the ultimate goal of the program was to facilitate appropriate health care for the employee by coupling specialty mental health care with traditional disability case management while leaving the management of the employee's treatment with their primary care physician. Collaboration was thus ensured between the attending physician, the disability case manager, and the consulting psychiatrist.

Methods

Sample

Between June 2006 and May 2007, employees with a disability related to psychiatric disorders ($n = 75$) were referred to the CMHC program using the criteria described above. A comparison group of control subjects ($n = 51$) was drawn from employees who were on short-term disability leave related to psychiatric disorders in the year before the program implementation and who would have met the screening criteria for the CMHC program. Data for the 2 groups were drawn from company administrative data routinely collected for people who received short-term disability benefits.

De-identified administrative data were used for the analyses. The analyses for this study underwent ethics review by the Centre for Addiction and Mental Health's Research Ethics Board.

Measuring Effectiveness

The 3 major objectives of the CMHC program were to:

1. Increase the number of workers who return to work.
2. Decrease the number of workers who transition to long-term disability leave.
3. Decrease the length of short-term disability episode.

Thus these 3 objectives became outcomes by which we measured the effectiveness of the program. Outcomes 1 and 2 are binary outcomes, and dummy variables were created to indicate the presence of the event (that is, 1 indicates the event occurred and 0 indicates otherwise). Study participants who quit their jobs had values of 0 for both Outcome 1 and Outcome 2. For Outcome 3, length of short-term disability leave was measured as the number of days between the employee's last day at work before going on short-term disability leave, and either the first day of the employee's return to work or transition to long-term disability leave.

Measuring Costs

Costs from the employer's perspective were the focus of this analysis and were based on the administrative data. Our economic evaluation is one of the first to use this perspective. The major costs for the CMHC program included services paid for by the employer and provided by the CMHC program (for example, consultations by the CMHC physician with the treating primary care provider) not covered under the public health care system. For the comparison group, the major costs to the employer were the IMEs that were conducted by third party psychiatrists.

Analytic Approach

Both parametric and nonparametric statistics were used to test whether there were significant sex and age differences between people in the group that received CMHC and those who were in the comparison group.

Before analyzing simultaneously the costs and outcome data as recommended by guidelines for economic evaluation,²⁶ the cost and outcome variables were tested for differences between the 2 groups. Group differences for the continuous variables (cost and days absent from work) were tested using Student *t* tests and confirmed using nonparametric Wilcoxon rank sum tests. Group differences for the binary outcomes (return to work and transition to long-term disability leave) were tested using chi-square tests.

The cost-effectiveness analysis was conducted using the net benefit regression framework to facilitate the use of

regression tools in the economic evaluation.²⁷ Net benefit regression uses a net benefit-dependent variable nb_i defined as:

$$\lambda \cdot \text{effect}_i - \text{cost}_i$$

It is created from person-level effect (effect_i) and cost (cost_i) data. Also, the dependent variable depends on the willingness to pay (λ) for one more unit of effect.

The ordinary least squares method was used to estimate the regression equation:

$$nb_i = \beta_0 + \beta_1 TX + \beta_2 \text{age} + \varepsilon$$

where TX is the new treatment indicator variable (that is, TX = 1 for the CMHC group and 0 for the comparison group). The coefficient estimate of β_1 equals the difference in the mean net benefits for the 2 groups (that is, the incremental net benefit). When the difference is positive (that is, $\beta_1 > 0$), CMHC is cost-effective relative to usual care. The statistical uncertainty about the cost-effectiveness estimate is available from uncertainty measures for the β_1 coefficient.

Because the dependent variable nb_i depends on the willingness to pay for one more unit of effect, sensitivity analyses were run to gauge the impact of the choice of willingness to pay. Small (\$10), medium (\$50), and large (\$100) willingness-to-pay values were used. To assess the uncertainty of the cost-effectiveness estimates, 95% confidence intervals were reported, and confidence ellipses were plotted on the cost-effectiveness plane.

Results

Bivariate Results

Initially, there were 75 participants in the CMHC group and 51 in the comparison group. However, 2 participants from the CMHC group had missing age data. Comparison of the results indicated that omitting these observations made the results more conservative (that is, less favourable for CMHC). Thus the reported results are based on the sample with complete data, composed of people in the CMHC group ($n = 73$) and in the comparison group ($n = 51$).

Table 1 contains the descriptive statistics for the 2 groups. The percentage of women in the CMHC group was 90% ($n = 66$) and 82% in the usual care group ($n = 42$); the difference was nonsignificant ($\chi^2 = 1.73$, $df = 1$, $P < 0.19$). In contrast, the average age of people in the CMHC group was 5 years less than those in the comparison group (49 years and 44 years, respectively); this was a statistically significant difference ($t = 3.29$, $df = 111.27$, $P < 0.01$).

There was no significant difference between the primary diagnoses of the people in the 2 groups. Most workers had major depressive disorder or adjustment disorder.

Table 1 Descriptive characteristics by group

Characteristic	Usual care <i>n</i> = 51	CMHC <i>n</i> = 73
Age, ^a years (SD)	49 (8.2)	44 (8.7)
	<i>n</i> (%)	<i>n</i> (%)
Women	42 (82)	66 (90)
Primary diagnoses		
Adjustment disorder	7 (14)	11 (15)
Major depressive disorder	36 (71)	49 (67)
Bipolar disorder	2 (4)	5 (7)
Anxiety disorder	5 (10)	2 (3)
Posttraumatic stress disorder	0 (0)	3 (4)
Stress	2 (2)	3 (4)

^a Significant difference between the 2 groups, $P < 0.001$

The average cost for the CMHC group was \$2023, with a median of \$1946. CMHC group costs ranged between \$211 and \$7073. In contrast, the average cost for the comparison group was \$2378, with a median of \$2531. The comparison group's costs ranged from \$1500 to \$3800. The difference between the average costs of the 2 groups was about \$355 less for the CMHC group, compared with the comparison group. However, the difference was not statistically significant using the Student *t* test ($t = 1.69$, $df = 93.37$, $P = 0.09$) but was using the nonparametric Wilcoxon rank sum test ($z = 2.71$, $P = 0.007$).

For the 3 outcomes, there were significant differences between the 2 treatment groups. There was a significantly higher proportion of the CMHC group who returned to work (85%, compared with 63%), ($\chi^2 = 8.06$, $df = 1$, $P = 0.005$) and a lower proportion that transitioned to long-term disability leave (7%, compared with 31%), ($\chi^2 = 12.84$, $df = 1$, $P < 0.001$). In addition, the average number of days on short-term disability leave was significantly shorter for the CMHC group (62 days, compared with 76 days) when tested parametrically using the Student *t* test ($t = 2.17$, $df = 108.49$, $P = 0.03$); the statistical significance of this finding was confirmed with the non-parametric Wilcoxon rank sum test ($z = 2.19$, $P = 0.03$).

To illustrate the cost and outcome implications simultaneously, the results were illustrated on a cost-effectiveness plane. The *y* axis of the cost-effectiveness plane shows the extra cost of CMHC. Negative values on this axis of the cost-effectiveness plane correspond to cost-savings. The *x* axis on the cost-effectiveness plane shows the extra effectiveness of CMHC. A more effective, less costly program would

have a point estimate in the lower right quadrant of the cost-effectiveness plane. For all 3 outcomes—days lost, return to work, and transition to long-term disability leave—the point estimate indicates CMHC costs less and is more effective (Figures 1, 2, and 3).

To provide an impression of the statistical uncertainty associated with the cost-effectiveness estimate, 95% confidence ellipses were constructed. Figure 1 illustrates the impact of adjusting for age when considering the days absent outcome. Figures 2 and 3 illustrate the unadjusted and adjusted estimates and 95% confidence intervals when the outcome of interest is return to work or transition to long-term disability leave, respectively.

Net Benefit Regression Results

While the separate cost and outcome results hint at the potential that CMHC is cost-effective, further analysis is warranted for 2 reasons. First, to examine cost-effectiveness, the cost and effect data should be analyzed simultaneously, not separately.²⁶ Second, as there was a statistically significant difference in the average ages of the 2 groups, the cost-effectiveness results were adjusted for age.

The cost and effect data were analyzed simultaneously while adjusting for age using net benefit regression²⁷ (Tables 1 and 2). When willingness to pay was zero, CMHC was \$503 less costly (Table 2). When the willingness-to-pay values were varied at \$10, \$50, and \$100, the extra benefits derived from CMHC were of greater value than the extra costs (Table 3).

Discussion

Our results provide evidence that a CMHC approach for the disability management of workers presenting with relatively more severe symptoms and more intense treatment needs is economically attractive. For example, the results suggest that, with CMHC, for every 100 people there could be an expected \$50 000 in disability benefit savings (\$503 per person \times 100 people) along with more people returning to work ($n = 23$), less people transitioning to long-term disability leave ($n = 24$), and 1600 more workdays (16 less short-term disability days \times 100 people). The coefficient for the CMHC variable in Table 3 is significantly greater than zero for all willingness-to-pay values. This suggests the extra benefits of CMHC outweigh the extra costs in general.

Although the program appears to be effective and cost-effective, there is at least one major challenge to its success. One of the hallmarks of many of the conventional collaborative care models is the relationship that is built between the specialist and primary care physicians.²⁵ That is, there is an emphasis on developing an ongoing collaboration between the providers through regular contact. However, in the disability management context, the psychiatrist approaches the

Figure 1 Cost-effectiveness estimate and confidence intervals plotted on the cost-effectiveness plane before and after adjusting for age, when considering improvements in number of days on short-term disability leave as the outcome

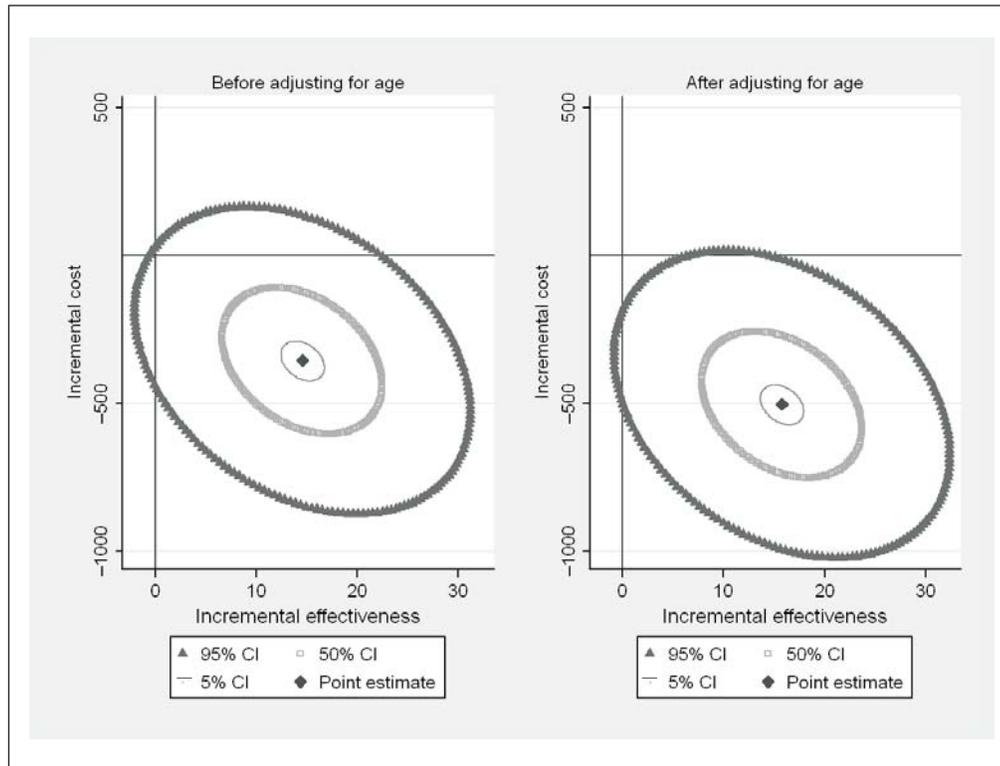


Figure 2 Cost-effectiveness estimate and confidence intervals plotted on the cost-effectiveness plane before and after adjusting for age, when considering improvements in percentage of workers returning to work as the outcome

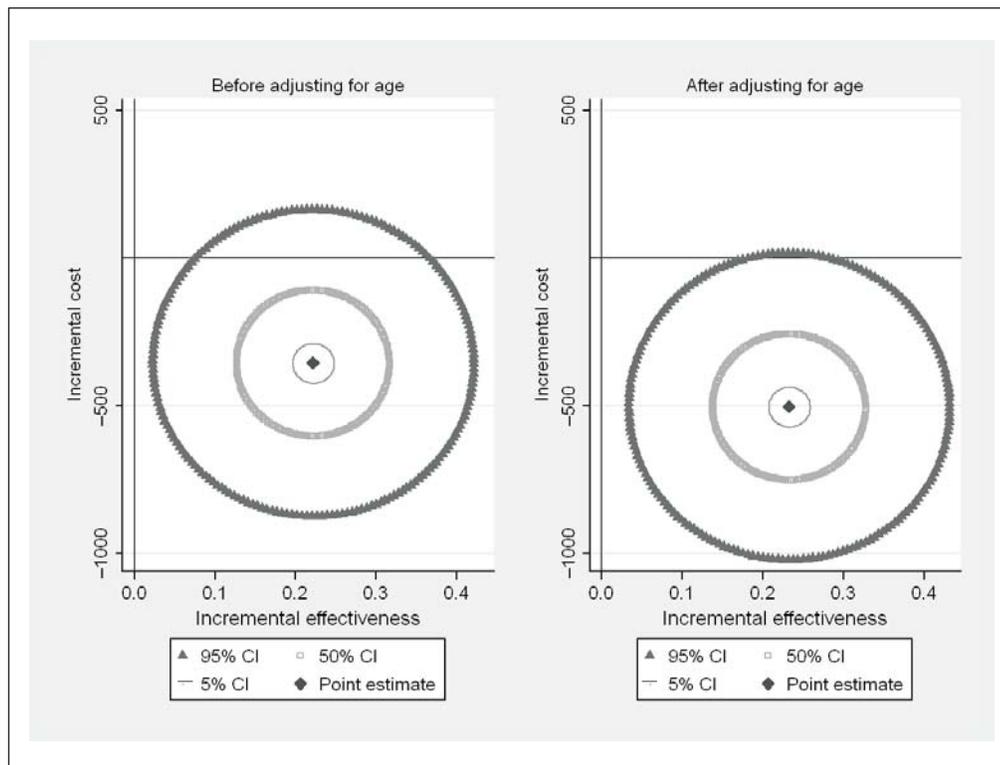
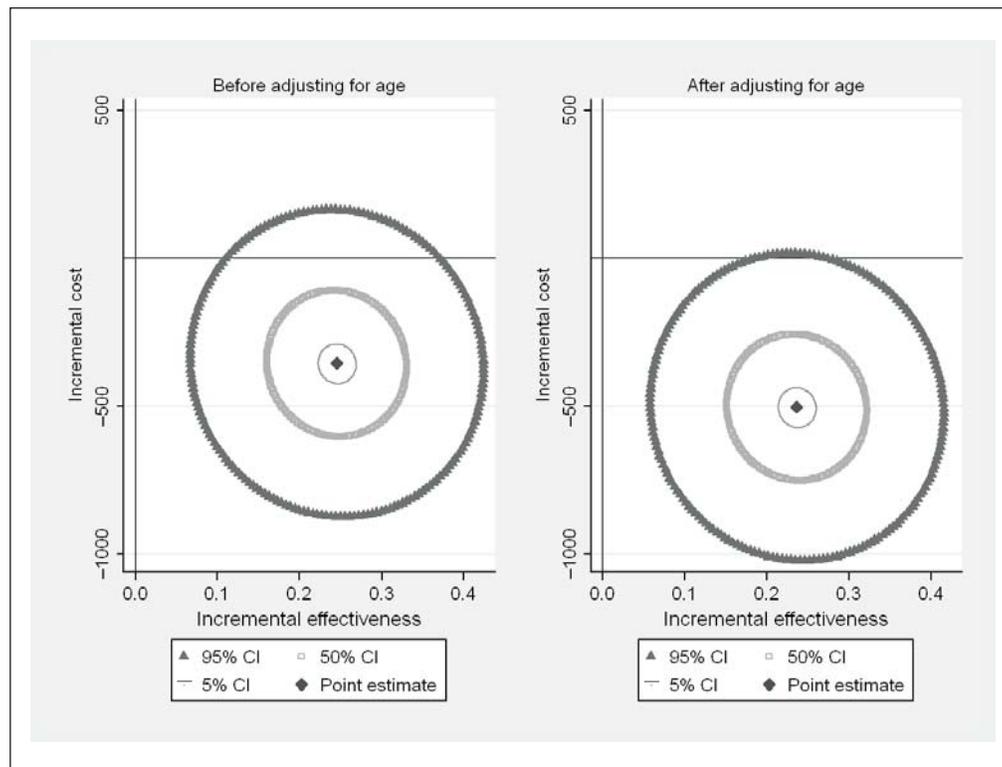


Figure 3 Cost-effectiveness estimate and confidence intervals plotted on the cost-effectiveness plane before and after adjusting for age, when considering improvements in percentage of workers going on long-term disability leave as the outcome



primary care physician in the absence of previous contact. It is likely that workers who are on disability leave do not have the same primary care physician. This will necessitate the CMHC psychiatrist to make many new contacts where goodwill on which to build does not exist and the primary care physician must be willing to accept the assistance of the consultation of the psychiatrist. Although it may appear daunting, during this demonstration project, most of the primary care physicians welcomed the opportunity for the telephone-based consultation. In fact, there was only one physician who declined contact with the CMHC psychiatrist.

As with all studies, our study must be considered within the context of its limitations. First, the cost-effectiveness analyses were done from the employer’s perspective. This means that costs were calculated for services that were not covered under the public health care system. At the same time, it should be noted that this is one of the first cost-effectiveness analyses to have been done from this perspective. It is also one of the first analyses to evaluate a CMHC model for workers on short-term disability leave.

A next step would be to understand the costs associated with treatments such as prescription drug benefits, use of

employment assistance programs, and counselling accessible under supplemental benefits.

Second, these data are from a demonstration study. Although the analyses looked at the program for a year, a next step is to understand the generalizability of the results in other business sectors and other types of disability management models. In addition, an RCT could enhance understanding the generalizability of the results.

Third, because this was a demonstration project, the case managers and CMHC psychiatrists could have been subject to a Hawthorne effect. That is, because they were aware that this was a demonstration project to examine the effectiveness of the new program, they may have been more diligent in their work with employees. Given the health care sector’s increased performance monitoring and quality improvement,²⁸⁻³⁰ these types of activities may become more common. If workplaces are also involved with the employee health, perhaps the types of monitoring and quality improvement activities will become standard within occupational health care as well. A next step in this research would be to conduct a longer-term evaluation during which case managers and psychiatrists have the opportunity to become more

Table 2 Summary of cost and effect statistics^a for 3 outcomes

Statistic by treatment assignment	Cost, \$	Outcomes		
		Days lost	Return to work	Long-term transitions
Averages				
Usual care (<i>n</i> = 51)	2378	7600 ^b (76 per person)	63 ^b (32 per 51 people)	31 ^b (16 per 51 people)
CMHC (<i>n</i> = 73)	2023	6200 ^b (62 per person)	85 ^b (62 per 73 people)	7 ^b (5 per 73 people)
Differences				
Unadjusted (95% CI)	355 less (834 less, 124 more)	15 less per person (28 less, 1 less)	22 more ^b (7 more, 37 more)	25 less ^b (37 less, 12 less)
Adjusted by age ^c (95% CI)	503 less (996 less, 11 less)	16 less per person (30 less, 2 less)	23 more ^b (7 more, 39 more)	24 ^b (37 less, 10 less)
^a Numbers rounded to the nearest integer				
^b Per 100 people				
^c Regression results with age and treatment indicator variables as independent variables				

Table 3 Net benefit regression results adjusting for age by low, medium, and high willingness to pay (λ) for 3 outcomes (*n* = 124)

Variable	Days lost			Return to work			Long-term disability		
	$\lambda = \$10$	$\lambda = \$50$	$\lambda = \$100$	$\lambda = \$10$	$\lambda = \$50$	$\lambda = \$100$	$\lambda = \$10$	$\lambda = \$50$	$\lambda = \$100$
Constant term	-4684.73 (807.04) ^a	-8190.73 (1437.24) ^a	-12 573.23 (2369.30) ^a	-3802.998 (704.01) ^a	-3782.078 (704.45) ^a	-3755.930 (705.15) ^a	-3810.500 (704.12) ^a	-3819.593 (704.94) ^a	-3830.958 (706.09) ^a
Age, years	31.712 (15.99) ^b	41.232 (28.47)	53.132 (46.93)	29.354 (13.95) ^b	29.440 (13.95) ^b	29.547 (13.97) ^b	29.315 (13.95) ^b	29.244 (13.96) ^b	29.155 (13.99) ^b
CMHC ^c	660.536 (285.20) ^b	1290.31 (507.91) ^b	2077.54 (837.29) ^b	505.419 (248.79) ^b	514.726 (248.95) ^b	526.360 (249.19) ^b	505.455 (248.83) ^b	514.906 (249.12) ^b	526.721 (249.53) ^b
<i>R</i> ²	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Standard errors in parentheses									
^a Significant at 1%									
^b Significant at 5%									
^c The coefficient reported in this row estimates how much the benefits outweigh the costs. The positive numbers suggest that the benefits appear to outweigh the costs.									
The outcome variable has been scaled so that a positive coefficient estimate on the CMHC variable corresponds to improvement in that outcome.									

accustomed to the monitoring and the Hawthorne effect could be diminished.

Employees might also have been subject to a Hawthorne effect to the extent that they might have experienced short-term improvement because of the additional attention given to them by the CMHC psychiatrist. It would be difficult to rule out the extent to which the effectiveness of the CMHC could be attributed to the Hawthorne effect. It is difficult to disentangle the effectiveness of treatment and attention. Future work could focus on identifying the critical ingredients

of the CMHC that decrease long-term disability rates and short-term disability episodes.

Fourth, another important outcome that should be examined is the recurrence rate for disability episodes. There is evidence that between 12% and 18% of workers who have been on disability leave related to a psychiatric disorder will have subsequent leave.^{31,32} This type of study will require longitudinal data from following a cohort for 12 to 24 months.

Finally, our study focused on a group with severe disability. It would also be important to examine whether the same types of results could be expected for all workers on disability leave.

Conclusions

Many employers provide employees with short- and long-term disability benefits. Supporting a CMHC model of disability management may be a worthwhile investment. Our research suggests the model in our study was a less costly and more effective way of providing mental health treatments for people who work. However, more research is needed to fill in the gaps about how best to support people who are receiving short-term disability benefits so that they can receive adequate treatment for their psychiatric disorders.

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References

- Dewa CS, Lin E, Kooehoom M, et al. Association of chronic work stress, psychiatric disorders, and chronic physical conditions with disability among workers. *Psychiatr Serv*. 2007;58(5):652–658.
- Lim KL, Jacobs P, Ohinmaa A, et al. A new population-based measure of the “economic burden” of mental illness in Canada. *Chronic Dis Can*. 2008;28(3):92–98.
- Dewa CS, McDaid D, Ettner SL. An international perspective on worker mental health problems: who bears the burden and how are costs addressed? *Can J Psychiatry*. 2007;52(6):346–356.
- Marchand A, Durand P, Demers A. Work and mental health: the experience of the Quebec workforce between 1987 and 1998. *Work*. 2005;25(2):135–142.
- Vezina M, Bourbonnais R, Brisson C, et al. Workplace prevention and promotion strategies. *Healthc Pap*. 2004;5(2):32–44.
- Simon GE, Barber C, Birnbaum HG, et al. Depression and work productivity: the comparative costs of treatment versus nontreatment. *J Occup Environ Med*. 2001;43(1):2–9.
- Caveau M, Dewa CS, Goering P. The influence of organizational factors on return to work outcomes. *Can J Commun Ment Health*. 2006;25(2):121–142.
- Gater R, Goldberg D. Pathways to psychiatric care in South Manchester. *Br J Psychiatry*. 1991;159:90–96.
- Goldberg DP, Huxley P. *Common mental disorders: a bio-social model*. New York (NY): Tavistock/Routledge; 1992.
- Cherry NM, Chen Y, McDonald JC. Reported incidence and precipitating factors of work-related stress and mental ill-health in the United Kingdom (1996–2001). *Occup Med (Lond)*. 2006;56(6):414–421.

- Spitzer RL, Kroenke K, Williams JB. Validation and utility of a self-report version of PRIME-MD: the PHQ primary care study. *Primary Care Evaluation of Mental Disorders. Patient Health Questionnaire*. *JAMA*. 1999;282(18):1737–1744.
- Fifer SK, Mathias SD, Patrick DL, et al. Untreated anxiety among adult primary care patients in a health maintenance organization. *Arch Gen Psychiatry*. 1994;51(9):740–750.
- Simon GE, VonKorff M. Recognition, management, and outcomes of depression in primary care. *Arch Fam Med*. 1995;4(2):99–105.
- Coyne JC, Schwenk TL, Fechner-Bates S. Nondetection of depression by primary care physicians reconsidered. *Gen Hosp Psychiatry*. 1995;17(1):3–12.
- Perez-Stable EJ, Miranda J, Munoz RF, et al. Depression in medical outpatients. Underrecognition and misdiagnosis. *Arch Intern Med*. 1990;150(5):1083–1088.
- Leclercq Y. Widespread underrecognition and undertreatment of anxiety and mood disorders: results from 3 European studies. *J Clin Psychiatry*. 2007;68 Suppl 2:36–41.
- Dewa CS, Rochefort DA, Rogers J, et al. Left behind by reform: the case for improving primary care and mental health system services for people with moderate mental illness. *Appl Health Econ Health Policy*. 2003;2(1):43–54.
- Kates N, Craven M, Bishop J, et al. Shared mental health care in Canada. *Can J Psychiatry*. 1997;42(8):Suppl 12 p.
- Gilbody S, Bower P, Fletcher J, et al. Collaborative care for depression: a cumulative meta-analysis and review of longer-term outcomes. *Arch Intern Med*. 2006;166(21):2314–2321.
- Katon W, Unutzer J. Collaborative care models for depression: time to move from evidence to practice. *Arch Intern Med*. 2006;166(21):2304–2306.
- Goldner E, Bilsker D, Gilbert M, et al. Disability management, return to work and treatment. *Healthc Papers*. 2004;5(2):76–90.
- Dewa CS, Hoch JS, Goering P, et al. Use of antidepressants among Canadian workers receiving depression-related short-term disability benefits. *Psychiatr Serv*. 2003;54(5):724–729.
- Mortelmans AK, Donceel P, Lahaye D, et al. Does enhanced information exchange between social insurance physicians and occupational physicians improve patient work resumption? A controlled intervention study. *Occup Environ Med*. 2006;63(7):495–502.
- Dewa CS, Hoch JS, Goering P. Using financial incentives to promote shared mental health care. *Can J Psychiatry*. 2001;46(6):488–495.
- Bland R, Bland R. Shared mental health care: a bibliography and overview. *Can J Psychiatry*. 2002;47(2 Suppl 1):iS–viiiS, 1S–103S. English. Prepared for the Canadian Psychiatric Association and the College of Family Physicians of Canada Collaborative Working Group on Shared Mental Health Care.
- Hoch JS, Dewa CS. An introduction to economic evaluation: what's in a name? *Can J Psychiatry*. 2005;50(3):159–166.
- Hoch JS, Briggs AH, Willan AR. Something old, something new, something borrowed, something blue: a framework for the marriage of health economics and cost-effectiveness analysis. *Health Econ*. 2002;11(5):415–430.
- Ganju V. Mental health quality and accountability: the role of evidence-based practices and performance measurement. *Adm Policy Ment Health*. 2006;33(6):659–665.
- Hermann RC, Chan JA, Zazzali JL, et al. Aligning measurement-based quality improvement with implementation of evidence-based practices. *Adm Policy Ment Health*. 2006;33(6):636–645.
- Lin E, Durbin J. Adapting the balanced scorecard for mental health and addictions: an inpatient example. *Healthc Policy*. 2008;3(4):160–174.
- Dewa CS, Goering P, Lin E, et al. Depression-related short-term disability in an employed population. *J Occup Environ Med*. 2002;44(7):628–633.
- Conti DJ, Burton WN. The economic impact of depression in a workplace. *J Occup Med*. 1994;36(9):983–988.

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Résumé : Le coût, l'efficacité et la rentabilité d'un programme de soins de santé mentale en collaboration destiné aux personnes recevant des prestations d'invalidité de courte durée pour des troubles psychiatriques

Objectif : Examiner le coût, l'efficacité et la rentabilité d'un programme pilote de soins de santé mentale en collaboration (SSMC) destiné aux personnes en congé d'invalidité de courte durée pour des troubles psychiatriques.

Méthode : À l'aide d'une méthode presque expérimentale, les analyses ont été menées auprès de 2 groupes de sujets qui recevaient des prestations d'invalidité de courte durée pour des troubles psychiatriques. Un groupe ($n = 75$) a été traité dans un programme de SSMC durant l'épisode d'invalidité. Le groupe témoin ($n = 51$) a reçu des prestations d'invalidité de courte durée liées aux troubles psychiatriques dans l'année précédente, mais n'a pas reçu de SSMC durant l'épisode d'invalidité. Les personnes des deux groupes ont satisfait aux critères de dépistage du programme de SSMC. Les différences de coût et de journées d'absence au travail ont été vérifiées à l'aide du test de Student et confirmées au moyen du Test de Wilcoxon non paramétrique. Les différences de retour au travail et de transition à un congé d'invalidité de longue durée ont été vérifiées à l'aide des tests χ^2 . L'analyse de rentabilité a utilisé le cadre de régression de l'avantage net.

Résultats : Les résultats suggèrent qu'avec les SSMC, pour chaque tranche de 100 personnes en congé d'invalidité de courte durée pour des troubles psychiatriques, on pourrait épargner 50 000 \$ en prestations d'invalidité, plus de gens retourneraient au travail ($n = 23$), moins de gens passeraient à un congé d'invalidité de longue durée ($n = 24$), et il y aurait 1600 jours de travail de plus.

Conclusions : D'après nos données canadiennes, les modèles de SSMC pour la gestion des invalidités peuvent être un investissement valable pour aider les personnes recevant des prestations d'invalidité de courte durée pour des troubles psychiatriques à recevoir un traitement adéquat.