JOURNAL OF MENTAL HEALTH AND CLINICAL PSYCHOLOGY
www.mentalhealthjournal.org

Mini Review Article Open Access

Income, Employment, and Insurance Gaps After the Onset of Mental Health Disability

Robert Millard

Assistant Professor, Department of Economics, Stony Brook University, Stony Brook, New York, USA

Article Info

Article Notes
Received: July 03, 2026
Accepted: August 24, 2026

***Correspondence:**
*Dr. Robert Millard, Assistant Professor, Department of Economics, Stony Brook University, Stony Brook, New York, USA. Email: robert.millard@stonybrook.edu

©2026 Millard R. This article is distributed under the terms of the Creative Commons Attribution 4.0 International License.

Keywords:
Mental Health
Disability
Income
Employment
Partial Insurance
Social Security
Cost of Illness

Abstract

This mini-review examines Millard[1], which links Canadian longitudinal survey data to administrative tax records to estimate the economic consequences of disability onset, focusing here on mental health related disabilities. Following onset, earnings fall by roughly $5,800 per year in the short run (1 to 5 years) and $8,400 in the long run (6 to 10 years), with labour force participation declining about 10 percentage points. Government transfers show no statistically significant response and the earnings of other household members do not adjust, so the combined tax and transfer system offsets only about 25 to 33 percent of the income loss and disposable income remains depressed a decade later. As the main paper shows, mental health disability is insured less completely than the other disability types it considers, marking it as among the least insured shocks and pointing to meaningful gaps in coverage.

Introduction

This mini review discusses *Heterogeneous Disability Shocks and the Dynamics of Income, Employment, and Partial Insurance,*[1] focusing on mental health related disabilities. The paper documents substantial heterogeneity in the economic consequences of disability onset and pronounced gaps in insurance across disability types. Throughout, partial insurance refers to the extent to which taxes, government transfers, and the income of other household members absorb an income shock, so that disposable resources fall by less than earnings. This review highlights the main findings in the manuscript, appraises the credibility of the mental health estimates, situates them in the partial insurance and mental health economics literatures, and draws out the policy and clinical implications the original leaves implicit.

A central result is that mental health disability onset causes significant, persistent declines in market income and labour force participation that public and private transfers only partially offset, leaving significant residual income risk. This matters given the rising share of mental health conditions in disability insurance applications in the United States[2] and growing recognition of mental illness as a barrier to economic independence[3]. Prior work shows mental health conditions affect employment, job stability, and earnings as much as or more than physical conditions[4-6], yet little is known about how households smooth income afterward. The reviewed paper fills this gap by quantifying insurance from transfers, taxes, and family networks and comparing mental health to other disability types; aside from tax progressivity, it finds these shocks only weakly

insured. For clinicians, financial hardship emerges as a common, lasting consequence of mental illness.

Institutional Setting

Canada's disability related social insurance comprises overlapping federal and provincial programs providing earnings replacement, means tested assistance, and tax-based support. The primary federal scheme is Canada Pension Plan Disability (CPP-D), which pays benefits tied to past earnings plus a flat component to contributors under 65 deemed to have a severe and prolonged disability that substantially limits gainful employment. The other programs each cover a narrower risk: Employment Insurance provides short term replacement for those temporarily unable to work; provincial Social Assistance is a means tested last resort; workers' compensation covers workplace injuries; and disability tax credits reduce liability regardless of labour force attachment. Because these programs differ in eligibility, timing, and generosity, and because the severe and prolonged standard is hard to meet for episodic conditions, their combined reach is central to the partial insurance analysis in Millard[1].

Data: The Longitudinal and International Study of Adults

The analysis uses the Longitudinal and International Study of Adults (LISA)[7], a survey of roughly 11,000 Canadian households, drawing on four biennial waves from 2012 covering health, labour market outcomes, income, and mental health disability onset. Its key strength is linkage to administrative tax records from the T1 Family Files, which supply annual income and transfer data from 1982 to 2017 and sharply reduce the measurement error common in survey income, especially for underreported transfers.[8] Using this linkage, the analysis decomposes income into market income (mainly wages, salaries, and commissions, which also define labour force participation), government transfers, taxes, after tax income (a proxy for consumption given no direct consumption data), and family income (capturing intra household insurance). Millard[1] gives full variable definitions.

Measuring Mental Health Disability

Disability is measured from the 2014, 2016, and 2018 LISA waves using the Statistics Canada Disability Screening Questions[9]; mental health conditions include depression, anxiety, bipolar disorder, substance use disorders, and related conditions. Individuals reporting activity limitations occurring sometimes, often, or always are classified as disabled. This broad definition improves sensitivity but means estimated effects are lower bounds, so the true burden for clinically severe cases is likely larger than the averages reported. Age of onset is self-reported as the earliest age limitations began[10], with the minimum used across waves; within person variation is limited. Because mental health conditions are episodic, remitting and relapsing[6,11], and LISA observes respondents only biennially with no continuous symptom tracking, the onset measure blends transient and persistent conditions and misses short episodes that resolve between waves. Millard[1] confirms the results are robust to restricting the sample to individuals observed for at least ten years after onset. Even so, because the data record onset but not recovery, less severe cases that resolve after their reported onset remain in the sample and are treated as persistently disabled, which attenuates the estimates toward zero. The reported effects should therefore be read as lower bounds on the burden of persistent mental illness.

Sample Selection

The sample links disability information from the 2014 to 2018 waves to 2012 baseline characteristics, restricting to individuals aged 22 to 61 observed at least four years, with onset at ages 23 to 56 to capture working age shocks and exclude retirement transitions. Onset before 1984 is excluded and outcomes are followed up to ten years post onset. The final sample is 14,717 individuals, including both those who ever experience mental health disability and never disabled individuals who serve as the comparison group.

Empirical Approach

The empirical strategy estimates the dynamic effects of disability onset using a two-way fixed effects (TWFE) event-study design:

$$y_{it} = \alpha_i + \gamma_t + X_{it}\beta + \sum_g \sum_k \delta_k^g A_{kit}^g + \epsilon_{it},$$

where y_{it} is the outcome for individual i in year t, α_i and γ_t are individual and time fixed effects, X_{it} is a vector of time-varying controls (province, marital status, number of children, education, plus flexible life-cycle and secular time trends), and A_{kit}^g are event-time indicators equal to one if individual i has a disability of type g at time $k \in \{-5, \ldots, 10\}$ relative to onset. The coefficients δ_k^g trace outcome dynamics relative to the period five years prior to onset and are interpreted as deviations from pre-trend-adjusted baseline levels. The specification follows standard event-study practice in the disability literature, using a five-year pre-period and ten-year post-period window[10,12]. Standard errors allow for serial correlation within individuals.

All estimation and figures were produced in Stata. Inference uses F tests of the joint null that post onset coefficients equal zero and of equality of post onset paths across disability types. Partial insurance is measured as the share of the before tax income loss absorbed by taxes and

transfers, one minus the ratio of the after tax loss to the before tax loss, so higher values mean fuller cushioning.

Millard[1] (Appendix 5.3) relaxes the TWFE assumptions with the Sun and Abraham[13] interaction weighted estimator, robust to staggered and heterogeneous timing, and with a propensity score matched comparison group addressing nonrandom onset; results hold. The design's main strengths are the administrative tax linkage, which reduces transfer under reporting[8], and these robustness checks. Its main limitations are self-reported onset subject to recall error, a broad activity-based definition, and small mental health cells that leave several estimates imprecise.

Results

Below, effects observed within five years of onset are treated as short-run, while those from six to ten years out are treated as long-run. Figures plot the estimated average effect of mental health disability by year relative to onset, with 95% confidence intervals shown as shaded bands.

Market Income

Figure 1 illustrates that mental health disabilities produce persistent declines in market income in the years following onset. Wages, salaries, and commissions (WSC) fall approximately $5,793 in the short run and $8,369 in the long run.[a] Labour market participation falls roughly 10 percentage points, though imprecisely estimated.[b] Conditional on employment, WSC declines in the short run but partially recovers after approximately seven years.[c] Thus, earnings declines occur at both the extensive margin (exiting employment) and the intensive margin (among those who remain employed). There is no significant substitution toward self-employment or other employment.

Pre-trend estimates are generally close to zero, although some lead effects are visible, consistent with gradual or fluctuating onset of mental health conditions and with measurement error in self-reported onset timing due to episodic symptoms. The PSM specification (Millard[1], Appendix Section 5.3) yields similar post-onset magnitudes, suggesting that the main results are not driven by pre-trend concerns.

Government Transfers and Family Income

Figure 2 examines responses in government transfers

a An F-test rejects the null that post-onset effects for mental health disabilities are jointly equal to zero (p-value = 0.0209).

b An F-test fails to reject the null that post-onset employment effects are jointly equal to zero (p = 0.107).

c We reject the null that post-onset WSC effects conditional on participation are jointly equal to zero at the 10% level (p = 0.06).

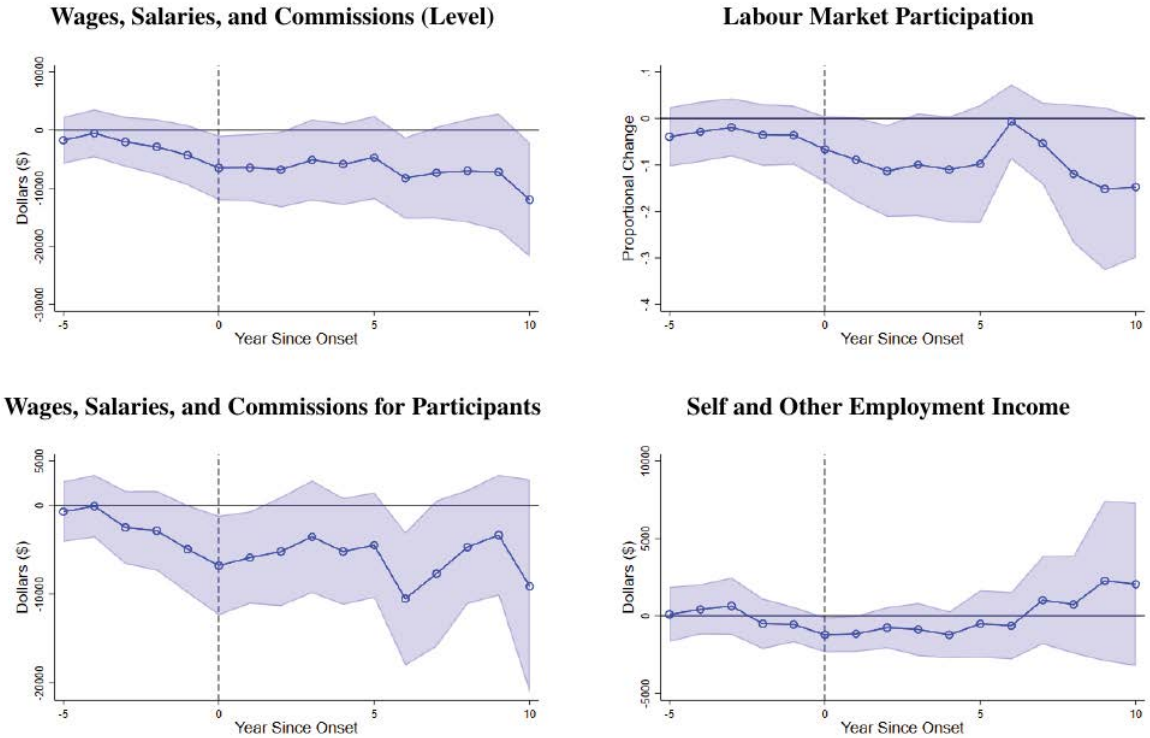

Figure 1: Effect of Mental Health on Market Income - Notes: Point estimates of the effect of mental health disability onset at event time k={-5,…,10} relative to reported onset, with 95% confidence intervals shown as shaded regions. Estimates used to construct the figures are reported in Section 7 of the Appendix of Millard[1].

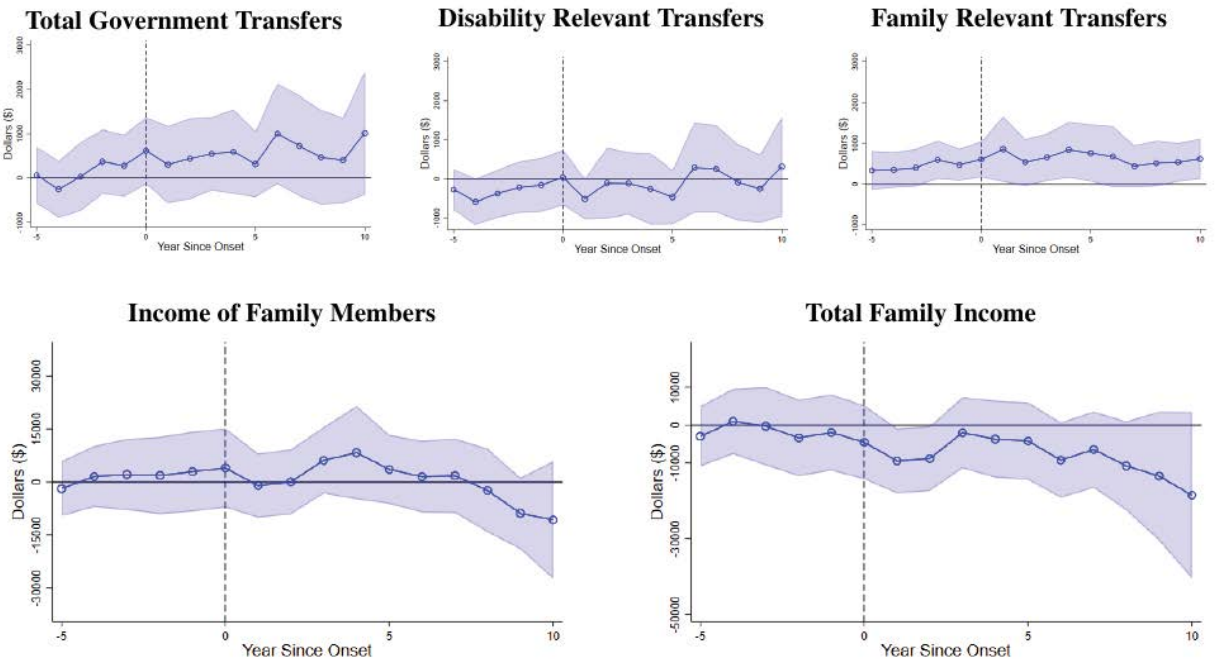

Figure 2: Effect of Mental Health on Government Transfers and Family Income - Notes: Point estimates of the effect of mental health disability onset at event time k={-5,…,10} relative to reported onset, with 95% confidence intervals shown as shaded regions. Estimates used to construct the figures are reported in Section 7 of the Appendix of Millard[1].

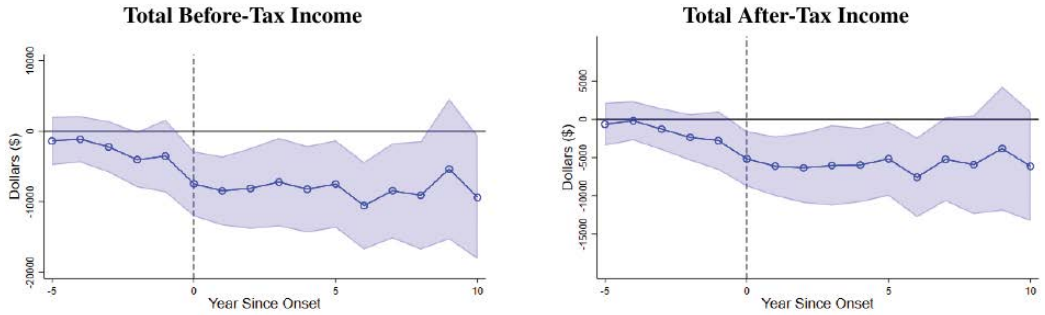

Figure 3: Effect of Mental Health on Before- and After-Tax Income - Notes: Point estimates of the effect of mental health disability onset at event time k={-5,…,10} relative to reported onset, with 95% confidence intervals shown as shaded regions. Estimates used to construct the figures are reported in Section 7 of the Appendix of Millard[1].

and household-level income components. Despite sizeable earnings losses, total government transfers show no significant increase after onset, and the earnings of other household members do not respond. Consequently, total family income declines substantially, by an average of $5,636 in the short run and $18,521 in the long run.[d] This indicates limited smoothing through both public transfers and intra-household labour supply.

Indirect Insurance via Tax System and Net Penalty to Take-home Income

Figure 3 assesses how much the tax and transfer system cushions income losses by reporting estimated effects on total before- and after-tax income. The tax system provides the main buffer. After-tax income falls substantially and persistently, with reductions of approximately $5,942 in the short run and $5,759 in the long run. Table 1 calculates the share of the income shock offset by taxes and transfers.[e] The implied buffering from the combined tax and transfer system offsets only about 25–33 percent of the total income decline, depending on horizon.

Heterogeneity in the Mental Health Effect

These averages mask sharp heterogeneity, the central theme of the main paper, which partitions disability into mutually exclusive activity based types and compares them. To place mental health in context, Millard[1] first groups conditions as physical or mental cognitive, then splits the

d An F-test rejects the null that post-onset effects on total family income are jointly equal to zero (p-value = 0.0003).

e Specifically, this is calculated as 1 − (total after-tax effect)/(total before-tax effect).

Table 1: Effect of Mental Health Disability on Before- and After-Tax Incomes

Outcome	Before-Tax Income ($)	After-Tax Income ($)	% Reduction
Short Run	-7,909	-5,942	25%
Long Run	-8,578	-5,759	33%

Notes: Average estimated effects of mental health disability onset in the short run ($k \in \{1, \ldots, 5\}$ years relative to onset) and long run ($k \in \{6, \ldots, 10\}$ years). Income variables are top-coded at the 99th percentile. Estimates are based on specifications reported in Section 7 of the Appendix in Millard[1].

physical group into kinetic ability (movement related) and pain, and the mental cognitive group into cognitive functioning and mental health. Against these benchmarks mental health stands out: it receives little insurance from transfers, taxes, or family income despite market income losses comparable to kinetic ability disabilities, whereas cognitive functioning disabilities are meaningfully insured through transfers and reduced taxes (F tests reject equality of transfer paths between mental health and kinetic ability, p=0.019, and of after tax income paths between mental health and cognitive functioning, p=0.050).

Within mental health, the damage concentrates among lower educated individuals; among the post secondary educated, onset does not significantly move earnings or participation, though after tax income still falls. Effects are also larger for younger individuals (onset before 45) than older ones, the reverse of the pattern for cognitive functioning disabilities, suggesting mental illness impedes early career attachment. Magnitudes differ by sex, and mental health disability is more prevalent among women. The least insured, most exposed group is thus younger, lower educated individuals with mental health disability.

Discussion and Conclusion

The evidence points to substantial gaps in income insurance for mental health related disabilities: despite large, persistent market income losses, neither transfers nor family labour supply respond meaningfully, and the tax system only partially compensates.

These results suggest, but do not prove, that verification difficulties matter: mental health conditions are harder to verify and less tightly linked to eligibility rules built around observable, persistent limitations, yet they still drive sizable, enduring income declines. Consistent with this, Employment and Social Development Canada[14] documents lower allowance rates and longer adjudication for CPP-D claims citing mental health; the Canadian Institute for Health Information[15] finds such individuals less likely to receive contributory benefits and more reliant on tax based or means tested support; and the Mental Health Commission of Canada[11] notes eligibility frameworks are poorly suited to episodic impairment. Such frictions plausibly explain the muted transfer responses observed here.

These findings confirm and extend prior evidence. Larger losses among the lower educated echo Lundborg, Nilsson and Vikstrom[16], and the tax system's buffering role parallels Blundell, Graber and Mogstad[17], while the persistent income declines are consistent with Meyer and Mok[10]. The contribution is on the insurance side: canonical partial insurance studies (Blundell, Pistaferri and Preston[18]; Kaplan and Violante[19]) treat shocks as homogeneous, and the mental health and labour literature documents earnings and employment effects but not the insurance response. No prior work quantifies how completely the tax, transfer, and family income system insures mental health shocks specifically, which is where Millard[1] is novel.

Several limitations qualify these conclusions. Onset is self-reported and mental health conditions are not absorbing states, so estimates blend transient and persistent cases and miss short episodes. After tax income proxies but does not observe consumption, missing savings drawdown, debt accumulation, and informal transfers from family or friends that lie outside tax records; savings and informal help could cushion true consumption while debt could worsen it, so the estimates bound disposable income rather than consumption.[18]

Most advanced economies insure disability through the same three staple programs: contributory disability insurance, means tested social assistance, and employment insurance. Canada (CPP-D, provincial assistance, and EI) and the United States (SSDI, SSI, and unemployment insurance) are close analogues, and many other advanced economies follow the same template. These programs share the very features that disadvantage episodic mental illness: disability insurance is keyed to severe and prolonged impairment, employment insurance is short term, and social assistance is a means tested last resort. Because fluctuating mental health conditions fit none of the three well, the insurance gap documented here likely generalizes across systems even where the magnitudes differ. The rising share of mental health in U.S. disability applications[2] suggests the pressure is not unique to Canada, but systems offering partial or episodic benefits may insure these shocks more fully; a cross-country comparison is left for future research.

From a policy standpoint, and setting aside optimal benefit levels, mental health related disabilities are a case where income losses are large relative to available public insurance, indicating scope to redesign eligibility and benefits to fit these risks, in particular accommodating episodic impairment without requiring complete labour force exit to qualify.

Clinically, the onset of a disabling psychiatric condition brings a large income loss that existing programs offset only partially. This points to a few practical steps. Clinicians

can screen patients for financial strain and connect them to benefits navigation and vocational support. Because CPP-D requires a severe and prolonged impairment that episodic conditions often struggle to document, recording functional limitations over time may strengthen a patient's claim, and supporting workplace accommodations may help patients stay employed.

Future research should link disability types to specific job tasks and skills, use direct consumption or wealth data to move from income to welfare, and evaluate episodic benefit designs.

Data Availability

This paper uses confidential data that are administered by Statistics Canada and cannot be made publicly available. Steps for data access can be found at

https://www.statcan.gc.ca/en/microdata/data-centres/access.

Conflict of Interest

The author declares that he has no relevant or material financial interests that relate to the research described in this paper.

Statement on use of AI

Artificial intelligence tools were used to assist with writing and editing; all data analysis was conducted independently by the author.

Ethics Statement

This manuscript is a mini-review of previously published, peer-reviewed research (Millard 2026) and does not involve the collection, analysis, or re-analysis of any new human subjects data. No new ethics committee or institutional review board approval was required for this work.

References

1. Millard R. Heterogeneous disability shocks and the dynamics of income, employment, and partial insurance. J Health Econ. 2026; 107: 103137. doi:10.1016/j.jhealeco.2026.103137
2. Autor DH. The unsustainable rise of the disability rolls in the United States: causes, consequences, and policy options. Cambridge (MA): National Bureau of Economic Research; 2011. NBER Working Paper No. 17697.
3. Frank RG, Glied SA. America's continuing struggle with mental illnesses: economic considerations. J Econ Perspect. 2023; 37(2): 153-178. doi:10.1257/jep.37.2.153
4. Biasi B, Dahl MS, Moser P. Career effects of mental health. Cambridge (MA): National Bureau of Economic Research; 2021. NBER Working Paper No. 29031.
5. Wang B, Frank R, Glied S. Lasting scars: the impact of depression in early adulthood on subsequent labor market outcomes. Health Econ. 2023; 32(12): 2694-2708. doi:10.1002/hec.4747
6. Jolivet G, Postel-Vinay F. A structural analysis of mental health and labor market trajectories. Rev Econ Stud. 2025; 92(3): 1920-1954. doi:10.1093/restud/rdae071
7. Statistics Canada. The Longitudinal and International Study of Adults, all cycles – survey and administrative data [Internet]. Ottawa: Statistics Canada; 2012-2018 [cited 2026 Jul 3]. Available from: https://www23.statcan.gc.ca/imdb/p2SV.pl?Function=getSurvey&SDDS=5144#a1
8. Meyer BD, Mok WKC, Sullivan JX. The under-reporting of transfers in household surveys: its nature and consequences. Cambridge (MA): National Bureau of Economic Research; 2009. NBER Working Paper No. 15181.
9. Grondin C. A new survey measure of disability: the Disability Screening Questions (DSQ) [Internet]. Ottawa: Statistics Canada; 2016 [cited 2026 Jul 3]. Catalogue No. 89-654-X2016003. Available from: https://www150.statcan.gc.ca/n1/pub/89-654-x/89-654-x2016003-eng.htm
10. Meyer BD, Mok WKC. Disability, earnings, income and consumption. J Public Econ. 2019; 171: 51-69. doi:10.1016/j.jpubeco.2018.06.011
11. Mental Health Commission of Canada. Making the case for investing in mental health in Canada [Internet]. Ottawa: MHCC; 2017 [cited 2026 Jul 3]. Available from: https://mentalhealthcommission.ca/resource/making-the-case-for-investing-in-mental-health-in-canada/
12. Collischon M, Hiesinger K, Pohlan L. Disability and labor market performance [Internet]. Bonn: IZA Institute of Labor Economics; 2023. IZA Discussion Paper No. 16100. Available from: https://ssrn.com/abstract=4436701
13. Sun L, Abraham S. Estimating dynamic treatment effects in event studies with heterogeneous treatment effects. J Econom. 2021; 225(2): 175-199. doi:10.1016/j.jeconom.2020.09.006
14. Employment and Social Development Canada. Canada Pension Plan Disability: program performance and adjudication [Internet]. Ottawa: Government of Canada; 2019 [cited 2026 Jul 3]. Available from: https://www.canada.ca/en/employment-social-development/corporate/reports/evaluations/cpp-disability.html
15. Canadian Institute for Health Information. Mental health and substance use in Canada [Internet]. Ottawa: CIHI; 2023 [cited 2026 Jul 3]. Available from: https://www.cihi.ca/en/mental-health-and-substance-use-in-canada
16. Lundborg P, Nilsson M, Vikström J. Heterogeneity in the impact of health shocks on labour outcomes: evidence from Swedish workers. Oxf Econ Pap. 2015; 67(3): 715-739. doi:10.1093/oep/gpv034
17. Blundell R, Graber M, Mogstad M. Labor income dynamics and the insurance from taxes, transfers, and the family. J Public Econ. 2015; 127: 58-73. doi:10.1016/j.jpubeco.2014.04.011
18. Blundell R, Pistaferri L, Preston I. Consumption inequality and partial insurance. Am Econ Rev. 2008; 98(5): 1887-1921. doi:10.1257/aer.98.5.1887
19. Kaplan G, Violante GL. How much consumption insurance beyond self-insurance? Am Econ J Macroecon. 2010; 2(4): 53-87. doi:10.1257/mac.2.4.53