

Impact of Mental Health Disorders and Mental Health Services on Labour Force

Outcomes.

By
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Abstract

I analyze the impact of diagnosed mental health disorders and mental health services on peoples' potential to work by using the Canadian Community Health Survey, 2012: Mental Health Component. I use mood and anxiety disorders as the poor mental health indicator. The different types of maltreatment the individual experienced as a child is used as the instrument for mental health disorders. I uncover evidence that, diagnosed mental health disorders have a negative impact on peoples' potential to work. I also find evidence of a reduction in potential to work if participants with diagnosed mental health disorders believed they were not receiving the help or treatment they need.

Date:

Introduction

Costing 50 billion dollars per year to the Canadian economy, one in 5 Canadians has mental health issues (Smetanin et al., 2007). In any given week in Canada, there are 175,000 employees absent from work because of mental health problems (CAMH). Furthermore, it is harder for people with mental disorders to find employment or hold on to a job (Bowden 2005; Ettner, Richard, and Kessler, 1997; Patel, Knapp, Henderson, and Baldwin 2002).

Considering the crucial role played by mental health on the labour market, it is important to better understand the impact of mental health on labour market outcomes. Most of the empirical analyses show that mental health problems have a negative impact on employment status (Bowden, 2005; Chatterji, Alegria and Takeuchi 2011; Ojeda, Frank, McGuire, 2010), productivity (Dewa et al. 2007; Ettner, 2010), and labour market participation (Frijters, Johnston and Shields, 2010; Harkonmaki, Lahelma, Martikainen, Rahkonen, and Silventoinen, 2006; and Gilmer, 2010; Patel et al 2002;). Despite the existing relationship between labour force participation and mental health, the direction of causation is not clear. It is possible that unemployment or earning lower wages are contributors leading up to worsening mental health. For example, Murphy and Athanasou (1999) analyze 16 longitudinal studies and find that unemployment has a negative impact on people's mental health. Reverse causality is a problem that should be recognized by researchers to keep the analyses unbiased and to calculate the most accurate results. Overall, it is important to maintain positive mental health to achieve better economic outcomes.

One of the methods of improving the mental health status of people is consultation. For those seeking help, mental health consultation is provided by specialists such as psychologists, psychiatrists, social workers and others. Evidence-based psychological therapies have led to 50 %

recovery rates for clinical depression and chronic anxiety disorders (Layard, 2017). Although they are essential for improving the mental health status of people needing help, these services are highly costly to the overall economy. Besides the contribution to individuals' health, these services might have a positive impact on overall labour market outcomes. A clinical study was conducted to examine the impact of telephone-based collaborative care on people's panic and anxiety disorders. This study shows that not only did such therapy reduce mental health problems, it also benefits the labour force outcomes by decreasing absenteeism and increasing the hours worked per week (Rollman, Belnap, Hum and Mazumdar, 2005). In Britain, a study on cost-benefit analysis of psychological treatment shows that the cost of treatment would be covered by benefits and taxes incurred on the population who could not work unless they were treated (Clark, Knapp, Layard and Mayraz, 2007). Therefore, if poor mental health is a problem with respect to a person's capability to work and be productive, improving such conditions with the help of mental health services could benefit the economy.

In this study, I first investigate the impact of mental health disorders on an individual's potential to work. To do so, I use two-stage least square (2SLS) regression model and introduce a new Instrumental Variable (IV) called "Childhood Maltreatment" to the literature. Following this, I use the ordinary least squares regression model to examine the service-based issues raised by individuals with mental health disorders and the impact it had on their potential to work.

With the introduction of IV, 2SLS results show that diagnosed mental health disorders, such as depression, bipolar disorder, mania, dysthymia, phobia, obsessive-compulsive disorder or panic disorder, decrease the probability of working by 35.5 percentage points. This negative relationship between mental health disorders and employment has been recognized in earlier studies. My results confirm that this relationship also exists when applying Canadian data. Furthermore, people diagnosed with mental health disorders are less likely to work by 7.5

percentage points, if they said the help they received was not enough. These results contribute to the literature by highlighting service-based issues raised by individuals such as cost, availability and lack of information.

The rest of this paper is organized as follows; I first present a review of the literature by investigating the different approaches to measurement of mental health and solutions to the causality problem. I then describe my data, show my econometrics methodology and exhibit the results on the impact of mental health disorders and unmet need for help. Finally, I summarize the findings and conclude the discussion by emphasizing the importance of mental health services.

Literature Review

When one investigates the relationship between mental health and labour force outcomes, a consistent issue that arises is the appearance of reverse causality. This problem is further highlighted when I examine the affect of mental health disorders on a person's potential to work. For example, in some cases, lack of employment could cause the development of mental health issues in people. On the other hand, individuals already dealing with mental health issues may be unable to work due to their disorder. Therefore, these examples show that the direction is not clear.

Numerous authors attempt to resolve the issue of reverse causality by introducing IV to their estimations. IV is a variable that only has an affect on labour force outcomes through its impact on mental health. Therefore, this variable must have a strong relationship between mental health, but it can not relate to labour force outcomes in other ways. Some examples of IVs used in previous studies are parental history of mental health or early onset psychiatric disorders (Ettner et al. 1997, Chatterji et al.2007), religiosity (Alexandre and French, 2001; Chatterji et al.

2007), proxies for social support (Alexandre and French, 2001; Ojeda et al.,2009) and death of a close friend (Frijters et al. 2010).

Ettner et al (1997) addresses the issue of reverse causality by introducing childhood and parental mental health disorders as their IV. Their argument is that since mental illness could appear before the age of 18 (when an individual has not yet entered the labour market), there is no relation between IV and the labour force outcome. In addition, some mental illnesses are hereditary and are transferred from parent to child. On that basis, if a respondent's parents have a poor mental health background, their own mental health issues are explained without the impact of labour force outcomes.

Furthermore, Chatterji et al. (2007) investigate the impact of mental health on labour market outcomes for Latino and Asian minorities and by using religiosity as an IV. The main purpose behind using religiosity as an IV comes from the relationship between religion and social capital. This is because studies show that higher social capital is directly correlated to better mental health (Chatterji et al. 2007).

Despite multiple studies which support the type of IVs mentioned above, Frijters et al. (2010) criticize the use of childhood mental health disorders, by stating that it is not completely excluded from labour market outcomes. Studies find that early childhood disorders have a direct impact on later outcomes such as earnings (Frijters et al, 2010). They also question how religiosity may discourage people from attaining material wealth, which can also lead to them working less. In contrast, Alexandre and French (2001) states that attending religious services can assist person's labour force outcomes. Even though these variables have been used as an IV before, they can be problematic as it is hard to exclude all the other possible relationships.

Previous studies on the topic find significant relationships between mental health and labour force participation. For example, in estimating this relationship by using an IV-Probit model,

Frijters et al. (2010) show that one standard deviation increase in mental health results in a 17 percentage point increase in labour market participation. In another study, Etter et al. (2010), find that poor mental health resulted in a reduction of employment by 11 percentage points for women and 10.7 percentage points for men. This estimation controls the variables such as marriage status, education, and children. Without the introduction of those variables, the estimation for women increase to 14 percentage points and this number increase to 12.1 percentage points for men.

Finally, Chatterjia et al. (2011) estimate that commonly occurring mental disorders in the United States decreases the labour force participation by 9 percentage points and employment by 19 percentage points for females. These numbers for labour force participation and employment were 9 and 15 percentage points respectively for males. While all of these studies examine the same relationship, the results differ due to the diverse ways the authors measure mental health and because they use different sample size and different IVs.

Data and Methodology

Using data from the Canadian Community Health Survey, 2012: Mental Health Component (CCHS), I estimate the labour market effects of poor mental health and mental health services. CCHS is a sample survey with a cross-sectional design. Its purpose is examining those affected by a variety of mental disorders. In addition, it also considers the accessibility of mental health services and information regarding labour force outcomes. Surveyed participants includes members of the population older than 14 and living in the ten provinces of Canada. This approach by the CCHS excludes 3 % of the target population by not including participants from reserves, full time members of Canadian Forces and those who are institutionalized (CCHS). In addition, to get a better grasp at the working population, I exclude the participants between the ages of 15 to 19 years old and the those who are older than 64 years old from the sample.

Due to the restriction of only having access to a publicly available data set, a major limitation to the accessible data is that it does not provide information on unemployed individuals. A question in the survey asks if a person worked at a job or a business in the past 12 months. Respondents who answer no to this question could be unemployed or not participating in the labour force. However, this variable can be described as a person's potential of working which is used as binary dependent variable in this study.

CCHS provides a variety of variables with regards to an individual's mental health. These variables were constructed through the responses provided by participants of the survey under the chronic illnesses section. Questions such as *"Do you have any other psychosis? Do you have an anxiety disorder such as a phobia, obsessive-compulsive disorder or a panic disorder? Do you have any other long-term physical or mental health condition that has been diagnosed by a health professional?"* (CCHS) were asked in the chronic illness section of the survey. Participants that identified themselves as having a chronic illness, had to be diagnosed by a mental health professional (CCHS). I use responses to these questions as indicators of poor mental health in this study.

To measure the mental health status of the population group, I create a dummy variable called "Disorder" by combining diagnosed mood disorders and diagnosed anxiety disorders. These conditions had to be diagnosed by a health professional and were expected to last or had already lasted 6 months or more in patients (CCHS). Diagnosed mood disorders includes poor mental health indicators such as depression, bipolar disorder, mania and dysthymia. Anxiety disorders includes disorders such as phobia, obsessive-compulsive disorder and panic disorder.

Table 1 represents the weighted summary statistics for the dependent and independent variables. Primary interests are the occurrence of mental health disorders in both the female and male population. 15.6 % of women and 9.4% of men between the ages of 20 to 64 are diagnosed

with an anxiety or mood disorder by a health professional. For both women and men, diagnoses of mood disorder were higher than anxiety disorders. In the sample group, 87.1% of participants are not diagnosed with any mood or anxiety disorder and 82.3% of these participants worked in the past 12 months. However, for participants who are diagnosed with a mood or anxiety disorder, 62.9% of the participants worked in the past 12 months. When comparing the female population with the male population, there appears to be a higher percentage of women diagnosed with both mood and anxiety disorders. Furthermore, women are also less likely to be working in the past 12 months comparing to the male population.

Table 1. Descriptive statistics by gender

Variable	Male (N=5,030)	Female (N=6,350)	Total (N=11,380)
Worked in past 12 months	85.0%	75.8%	79.83
Diagnosed with Mood disorder	6.7%	11.4%	9.31
Diagnosed with Anxiety disorder	5.2%	8.7%	7.14
Diagnosed with a Mood or Anxiety disorder	9.4%	15.6%	12.87
Married	58.2%	55.4%	56.61
Education			
Less than secondary school graduation	13.9%	11.1%	12.35
Secondary school graduation	17.9%	16.9%	17.36
Some post-secondary	6.5%	6.3%	6.39
Post Secondary Graduation	61.7%	65.7%	63.91
Age			
20 to 34 years	33.1%	31.5%	34%
35 to 49 years	31.3%	27.6%	29%
50 to 64 years	35.6%	37.7%	37%
Diagnosed with a Mood Disorder and Worked in the past 12 months	62.5%	59.8%	60.7%
Diagnosed with an Anxiety Disorder and Worked in the past 12 months	63.1%	60.0%	61.0%
Diagnosed with a Mood or Anxiety Disorder and Worked in the past 12 months	64.4%	62.1%	62.9%
No Disorder and Worked in the past 12 months	87.1%	78.3%	82.3%

To resolve the reverse causality problem, I use the IV approach by creating a dummy variable from childhood maltreatment experience as an estimator of future mental health. There are many studies which show that childhood maltreatment is associated with the development of mental health disorders in children (Bronsard et al., 2016) and adults (Springer et al., 2007; Dovran A, et al., 2015; Briere and Elliot., 2003). In their study, Chaaterji et al. (1997) use early childhood mental health disorders as an IV. The IV was limited to those under the age of 18 years old. This limitation was considered because those under 18 years old are less likely to be participating in the labour force. According to the studies mentioned above, childhood maltreatment experienced before the age of 16, is likely to increase the chance of the development of mental health problems during both childhood and adulthood. By observing those that have experienced childhood maltreatment under the age of 16, I create a similar IV approach as Chaaterji et al. (1997). The purpose of taking this approach is to avoid the initial condition problem.

As part of the CCHS, participants aged 20 and over were asked to identify how many types of childhood maltreatments they had experienced before the age of 16. The survey listed the following types of childhood maltreatments participants could identify as having experienced before the age of 16:

- witnessed or heard caregiver hit another adult
- was slapped, hit or spanked by an adult
- was pushed, grabbed, shoved or thrown at by adult
- was physically attacked (kicked/bitten/punched/choked/burned/other)
- experienced forced or attempted forced sexual activity
- experienced sexual touching
- sought assistance from a child protection organization for difficulties at home

For the purposes of this study, if a participant experienced more than two forms of childhood maltreatment, I generate the variable “Childhood Maltreatment”, with the value of one and zero otherwise. If the participant experienced three kinds of maltreatments, it indicates that at least one of the maltreatment was physical. Participants who has experienced only one or two types

maltreatment are excluded from the sample and my final sample population include 11,380 participants for the following analysis.

In this study, I use 2SLS model to measure the impact of mental health disorders on the potential for employment. The survey also includes observations on participant's gender, age, marital status, education, and socio-demographic characteristics. These observations are controlled in the regression model.

Linear regression:

$$Work = \alpha + \beta_1 Age + \beta_2 Sex + \beta_3 Marital Status + \beta_4 Education + \beta_5 Disorder$$

where Disorder is an endogenous variable and;

$$Disorder = \alpha + \beta_1 Age + \beta_2 Sex + \beta_3 Marital Status + \beta_4 Education + \beta_5 Childhood Maltreatment$$

and Childhood Maltreatment is an instrumental variable.

The key deliberation in the analysis is the choice of the instrument. Experienced childhood maltreatment as an instrument is likely to please the IV expectations. It is reasonable that participants who have experienced some sort of maltreatment are affected in their adult work lives primarily through their own psychiatric health problems caused by childhood experiences. In addition, by controlling for other indicators, such as marital status, age, education, my estimation model decreases the effect of unobservable life experiences through which a direct effect of the instruments on the outcomes might function. The main focus in this section of the study is on measuring the effects of mental health disorders on a labour market outcome. Therefore, there is no detailed analysis of the impact of potential mediators such as sex, age, education and marital status.

Mental Health Services Utilization is a broad section found in the CCHS that addressed the participants' perceived level of help, their number of consultations with different professions, and their reasons for stopping these consultations (CCHS). To observe the relationship between mental health service-based issues and potential to work, I focus on the following surveyed question "Do you think you got as much of this kind of help as you needed (in the past 12 months)?" This question was asked to participants to determine if the received help in the past 12 months was enough or not.

The main focus of this section of the study is to observe the impact of the level of help received on labour market outcomes. Some participants stated that, they needed more help than they received. I use a dummy variable to examine the labour outcome of two different views on received help. This variable is named "Level of Help Received". If the participant said more help was needed, the dummy variable takes the value of one and zero otherwise. Participants who were not diagnosed with a mood or anxiety of disorder are excluded from the sample. This sample group include 1,603 participants and Ordinary Least Square regression model is used as the estimation model.

$$\begin{aligned} \textit{Work} = & \alpha + \beta_1 \textit{Age} + \beta_2 \textit{Sex} + \beta_3 \textit{Marital Status} + \beta_4 \textit{Education} \\ & + \beta_5 \textit{Level of Help Received} \end{aligned}$$

The key deliberation in the analysis is to highlight the affect of received help on participant's potential to work. Some participants needed but were not able to get more help due to variety of reasons. These reasons include issues such as, not having insurance coverage, services not being readily available, or not having more information about available services. Such problems are fundamental issues that have direct impact on the patient's well being and therefore the overall economy.

Results

OLS estimates – any disorder. Table 2 provides regression results for potential to work in both the male and female population that were diagnosed with a mood or anxiety disorder. These results are single equation robusted estimates without the inclusion of IV. Women and men who were diagnosed with a mood or anxiety disorder are less likely to work than were women and men without either diagnoses.

Table 2. Estimated OLS regression coefficients predicting potential of working by diagnosed mental health disorders among man and women

	FEMALE (N=6,350)			MALE (N=5,030)			TOTAL (N=11,380)		
	Est. beta coeff	SE beta	p-Value T-test	Est. beta coeff	SE beta	p-Value T-test	Est. beta coeff	SE beta	p-Value T-test
No Disorder	REF	–	–	REF	–	–	REF	–	–
Diagnosed With Disorder	-0.1546726	0.0156	0.00	-0.2124906	0.021416	0.00	-0.17591	0.012635	0.00
Age									
20 to 24 years	REF	–	–	REF	–	–	REF	–	–
25 to 29 years	-0.0315081	0.0199	0.11	0.0350725	0.017037	0.04	-0.00435	0.013668	0.75
30 to 34 years	-0.0584265	0.0195	0.00	0.0079128	0.017955	0.66	-0.03087	0.013693	0.02
35 to 39 years	-0.0142022	0.0203	0.49	0.0081202	0.017951	0.66	-0.00303	0.013867	0.83
40 to 44 years	-0.036375	0.0213	0.09	-0.002675	0.018384	0.88	-0.01876	0.014195	0.19
45 to 49 years	0.0120591	0.0201	0.55	-0.0196232	0.019733	0.32	-0.00139	0.014249	0.92
50 to 54 years	-0.0187234	0.0196	0.34	-0.0461275	0.019907	0.02	-0.03159	0.014167	0.03
55 to 59 years	-0.1080451	0.0204	0.00	-0.1073618	0.02148	0.00	-0.10592	0.014959	0.00
60 to 64 years	-0.2726174	0.022	0.00	-0.3043378	0.024167	0.00	-0.28653	0.016382	0.00
Education									
Less Than Secondary Education	REF	–	–	REF	–	–	REF	–	–
Secondary School Graduation	0.2075207	0.0229	0.00	0.1515091	0.015445	0.00	0.151509	0.015445	0.00
Some Post-Secondary	0.2421663	0.028	0.00	0.1503824	0.019653	0.00	0.150382	0.019653	0.00
Post Secondary	0.2955821	0.0198	0.00	0.216746	0.013326	0.00	0.216746	0.013326	0.00
Sex									
Male	–	–	–	–	–	–	REF	–	–
Female	–	–	–	–	–	–	-0.08332	0.006987	0.00
Marital Status	0.0350434	0.011	0.00	-0.0500668	0.010092	0.00	-0.00125	0.007633	0.87
Constant	0.5842969	0.0252	0.00	0.850953	0.022743	0.00	0.753657	0.017552	0.00
r^2		0.1213			0.1373			0.1292	

Single equation regression estimates show that both male and female participants who were diagnosed with a mood disorder or anxiety disorder are 17.6 percentage points less likely to work in the past 12 months. For females this estimation is at 15.5 percentage points and for males it is at 21.2 percentage points.

IV estimates – Any disorder. As discussed above, the use of diagnosed mood and anxiety disorders as a poor mental health indicator, introduces the potential for reverse causation from labour market outcomes to mental health status. Just as before, the impact of a diagnosed disorder has a damaging effect on an individual's potential to work. Although the effect of mental health disorders became larger after instrumenting.

Amongst the overall population, the impact of being diagnosed with a mood or anxiety disorder on the participant's potential of working, increases from 17.5 percentage points to 40 percentage points. In addition, the impact of mental health disorders on the male population's potential to work increase 29 percentage points after the instrumenting. The female population experience a 19 percentage point increase. While beta coefficients increases, p values are still significant. However, standard errors are also increased.

Table 3. Instrumental Variable Estimation, coefficients predicting potential of working by diagnosed mental health disorders among man and women

	FEMALE (N=7,089)			MALE (N=5,030)			TOTAL (N=11,380)		
	Est. beta	coeff SE beta	p-Value T-test	Est. beta	coeff SE beta	p-Value T-test	Est. beta	coeff SE beta	p-Value T-test
No Disorder	REF	-	-	REF	-	-	REF	-	-
Diagnosed With Disorder	-0.3424114	0.0626592	0.00	-0.5061	0.088781	0.00	-0.4071948	0.0511759	0.00
Age									
20 to 24 years	REF	-	-	REF	-	-	REF	-	-
25 to 29 years	-0.0212128	0.0221265	0.34	0.03947	0.0212344	0.06	0.0046122	0.0156078	0.77
30 to 34 years	-0.0522535	0.0212772	0.01	0.018546	0.0207783	0.04	-0.0229136	0.0151044	0.13
35 to 39 years	0.0027611	0.0232407	0.91	0.023883	0.0215948	0.27	0.0140568	0.016154	0.38
40 to 44 years	-0.0224168	0.0236786	0.34	0.011498	0.0212007	0.59	-0.0044758	0.0161448	0.78
45 to 49 years	0.0243974	0.0230496	0.29	-0.01049	0.0214232	0.62	0.0101669	0.0160258	0.53
50 to 54 years	-0.0047062	0.0220003	0.83	-0.02852	0.0213343	0.18	-0.015704	0.0155699	0.31
55 to 59 years	-0.0961397	0.0212342	0.00	-0.08226	0.0215702	0.00	-0.0891935	0.0152224	0.00
60 to 64 years	-0.2662629	0.0210542	0.00	-0.29514	0.0207774	0.00	-0.2788262	0.0150165	0.00
Education									
Less Than Secondary Education	REF	-	-	REF	-	-	REF	-	-
Secondary School Graduation	0.1959942	0.0202036	0.00	0.092367	0.017497	0.00	0.1433612	0.013556	0.00
Some Post-Secondary	0.2346284	0.0259821	0.00	0.061778	0.0234598	0.01	0.1485906	0.0177297	0.00
Post Secondary	0.2805004	0.0175159	0.00	0.124146	0.0146991	0.00	0.2047637	0.0115973	0.00
Sex									
Male	-	-	-	-	-	-	REF	-	-
Female	-	-	-	-	-	-	-0.0678014	0.0080076	0.00
Marital Status	0.0505377	0.0120357	0.00	-0.03048	0.0122119	0.01	0.0165554	0.0086304	0.06
Constant	0.6076464	0.0246632	0.00	0.858085	0.0216864	0.00	0.7629773	0.0167529	0.00
r^2		0.0965			0.081			0.0929	

To check the strength of my IV implication, I perform the following tests. First, I test for the endogeneity by using Durbin-Wu-Hausman test of endogeneity on STATA. Both Durbin Score statistics and Wu-Hausman statistics had small p values. Therefore, I reject the null hypothesis that variables are exogenous, and I am correct at treating the mental health disorders as an endogenous variable. Second, I test for weak instruments by using the “estat firststage” command on STATA. My F values are greater than any critical values that were shown. Therefore, I reject the null hypothesis that my instrument is weak.

OLS estimates – Level of help received. The estimates in Table 4. show the effect of level of help received on participant’s potential to work. Amongst the overall population, not receiving as much as help, decrease the possibility of working by 7.2 percentage points.

Table 4. Estimated OLS regression coefficients predicting potential of working by level of help received, among man and women who are diagnosed with health disorders

	FEMALE (N=1,901)			MALE (N=512)			TOTAL (N=1,603)		
	Est. beta	co SE beta	p-Value T-test	Est. beta	co SE beta	p-Value T-test	Est. beta	co SE beta	p-Value T-test
Did Not Need More Help	REF	-	-	REF	-	-	REF	-	-
Needed More Help	-0.0833	0.031595	0.01	-0.04698	0.052906	0.38	-0.07294	0.02715	0.01
Age									
20 to 24 years	REF	-	-	REF	-	-	REF	-	-
25 to 29 years	-0.04347	0.054116	0.42	-0.10297	0.092732	0.27	-0.05557	0.046534	0.23
30 to 34 years	-0.15397	0.056466	0.01	-0.14963	0.094413	0.11	-0.15088	0.048202	0.00
35 to 39 years	-0.06828	0.052704	0.20	-0.10128	0.082428	0.22	-0.07684	0.044058	0.08
40 to 44 years	-0.16725	0.057365	0.00	-0.1975	0.09098	0.03	-0.1683	0.047905	0.00
45 to 49 years	-0.16271	0.055506	0.00	-0.01962	0.019733	0.01	-0.1869	0.046547	0.00
50 to 54 years	-0.22975	0.055598	0.00	-0.32642	0.087731	0.00	-0.25775	0.046591	0.00
55 to 59 years	-0.38124	0.052925	0.00	-0.10736	-0.31331	0.00	-0.35117	-0.04534	0.00
60 to 64 years	-0.43605	0.059917	0.00	-0.521	0.099072	0.00	-0.45595	0.051299	0.00
Education									
Less Than Secondary Education	REF	-	-	REF	-	-	REF	-	-
Secondary School Graduation	0.261177	0.05316	0.00	0.185335	0.079926	0.00	0.229715	0.044283	0.00
Some Post-Secondary	0.321676	0.064907	0.00	0.14461	0.08709	0.01	0.253678	0.051868	0.00
Post Secondary	0.393114	0.041254	0.00	0.32009	0.065951	0.00	0.365065	0.035262	0.00
Sex									
Male	-	-	-	-	-	-	REF	-	-
Female	-	-	-	-	-	-	-0.3114	0.024008	0.19
Marital Status	-0.09203	0.029407	0.00	-0.03048	0.012212	0.01	-957215	0.024424	0.00
Constant	0.594122	0.062262	0.00	0.734079	0.098577	0.00	0.658778	0.056145	0.00
r^2	0.174			0.1343			0.1572		

For the female population, a dissatisfactory level of help reduces the potential of working by 8.3 percentage points. Beta coefficient for the male population is insignificant. This is most likely caused by the sample being smaller.

Discussion

This study attempts to measure the impact of poor mental health and mental health services on the potential for working by analysing the Canadian Community Health Survey: Mental Health Component, 2012. To do so, I use diagnosed mood and anxiety disorder as a poor mental health indicator. I also use childhood maltreatment experiences as an IV to resolve the reverse causality problem. By running an OLS robust regression, I provide evidence that people who are diagnosed with mental health disorders are less likely to be working. The IV estimates produce results, are similar in direction but has higher beta coefficient. These findings support results from

the earlier studies in regard negative impact of mental health problems on labour force outcomes. In addition, I investigate the impact of level of help received on participants' potential to work. I find a 7.5 percentage point reduction on likelihood of working, if people needed more help than the help they received. Some participants were not able to get more help because the services were not readily available or they were not able to financially afford it.

The results of my research support the idea that we should keep improving mental health services in Canada to achieve better labour force outcomes. Individuals who struggle with mental health issues appear to be less likely to work, especially when mental health services are inadequate or unavailable. On that basis, access to adequate mental health services could have a significant impact on labour force outcomes as it could result in more individuals remaining in the workforce. Further studies that investigate the positive impact of mental health services on the Canadian economy and labour force should be conducted to guide the developing policies.

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