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Mental health stigma☆

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ABSTRACT

Comparing self-reports to administrative records, we find that survey respondents are significantly more likely to under-report mental illnesses compared to other health conditions. This behavior is consistent with the existence of stigma of mental illnesses. We show that stigma can play a role in determining health-seeking behavior.

1. Introduction

The fear of being stigmatized or socially sanctioned and disgraced governs many aspects of human behavior. In many cases, the fear of stigma does not result in actual behavior change but rather leads individuals to simply hide certain behaviors or actions (for example, smoking in secrecy). This is in line with the definition of stigma in the seminal work on the topic by Goffman (1963).

We show the existence and consequences of stigma in an important area of public health concern: mental health.[1] We compare survey self-reports on diagnoses and mental health drug use to administrative data on prescription drug use in a sample of more than 250,000 individuals. While there could be various drivers for the differences between survey self-reports and administrative data, our leading explanation is that if mental illnesses were not stigmatized, the difference between self-reported survey responses and objective administrative records should be statistically similar to other diseases.

While a large literature in psychology and psychiatry has examined the existence of stigma in mental health (see examples in Corrigan (2000)) the approach of using *relative* misreporting of mental health in a heterogeneous sample of about a quarter of a million individuals, is novel.[2] Our work also complements a recent set of papers that focus on stigma in the case of Human Immunodeficiency Virus (HIV) (Thornton, 2008; Derksen et al., 2017; Hoffmann et al., 2014; Ngatia, 2016) and papers that match self-reported health measures to administrative health records (see Harlow and Linet (1989), Baker et al. (2004), and Johnston et

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[1] In the working paper version (Bharadwaj et al., 2015), we construct a simple model of stigma and choices in the face of stigma.

[2] Some recent work examines misreporting in mental health related visits to general practitioners (GPs), such as Palin et al. (2011). However, the sample size used in Palin et al. (2011) is quite small (145 patients), and misreporting of visits for reasons other than mental health is not examined. Rhodes et al. (2002) document misreporting of mental health in a larger sample of individuals, however, they too, do not examine misreporting in other health conditions. Using administrative data and cross sectional data from Taiwan, Wu et al. (2014) report match rates between self reports and medical claims records, but mental health and depression is not a focus of their work.

al. (2009)). These papers however, do not focus on mental health reporting. Hence, while it may be intuitive and taken for granted that there is stigma in mental health, empirically documenting its existence using a large administrative database is novel.

2. Methods and data

For the empirical analysis, we use a unique data set from Australia. The 45 and Up Study is a survey of more than 250,000 individuals 45 years of age or older residing in New South Wales (NSW), the most populous state of Australia. The survey, with the consent of all the participants, is linked to the individuals' administrative health records, including prescription drugs and doctor visits. We use the data covering the period of 2007–2010 (233,081 observations). Panel A of Appendix Table B.1 presents the descriptive statistics of demographic and socioeconomic variables in our analysis sample.

We investigate the extent of under-reporting of mental illness by matching self-reported mental health information in the 45 and Up Study to the administrative records of filled prescriptions for mental health disorders. The drugs for depression and other conditions are identified using the Anatomical Therapeutic Chemical (ATC) codes, listed in Appendix A.1. We use two types of self-reported measures of mental health from the 45 and Up study — self reports of diagnosis and self reports of prescription drug use.

First, individuals are asked whether a doctor has ever told them that they have a list of health conditions, including mental disorders (see Appendix Figure B.1). In the administrative records, we can observe whether an individual has filled any prescriptions for depression drugs from September 2005 until the survey date. To evaluate the extent of under-reporting of mental illness, we calculate the proportion of individuals observed filling prescriptions for depression drugs who *do not* report that they have been diagnosed with depression or anxiety.[3] We also compute the under-reporting rates of other health conditions: cardiovascular diseases (hypertension, heart disease, and stroke) and diabetes.

Second, in the 45 and Up Study, individuals are asked about their use of selected prescription drugs in the past four weeks (see Appendix Figure B.2). We calculate the under-reporting rate of depression drugs as a proportion of the individuals observed filling a prescription for any of the three depression drugs[4] who *do not* report using any of these drugs in the survey. We also estimate the under-reporting rates of drugs used for treatment of the following other conditions: cardiovascular and blood diseases (hypertension, congestive heart failure, high blood cholesterol, and thrombosis), diabetes, and other diseases (heartburn, gout, and thyroid disease).

3. Results

Table 1 presents the estimated under-reporting rates of mental disorders and other conditions. Panel A of Table 1 shows that 36.5% of people observed using depression drugs in the administrative data do not report that they have been diagnosed with either depression or anxiety. The average under-reporting rate of all other diagnoses is substantially lower at 17%. Diabetes has the lowest under-reporting rate (11%). Panel B of Table 1 reports the under-reporting rates of prescription drugs. The under-reporting rate of depression drugs is equal to 20%. The under-reporting rates of the other drugs are lower (13%–14%). Table 2 examines under-reporting for a subset of people who use multiple drugs. This analysis is akin to an individual fixed-effects model. For example, we take an individual observed as taking drugs for both depression and diabetes, and examine the relative excess under-reporting of mental illness for the same individual. Column 2 in Table 2 shows that among people who take both depression and diabetes drugs, mental illness diagnosis and drug use is under-reported 45% and 22% of the time, respectively, whereas diabetes diagnosis and drug use is under-reported only 14% of the time. Overall, the results presented in Tables 1 and 2 suggest that the stigma of mental illness can lead to substantial under-reporting of mental disorders in the survey data.

Next, we explore alternative explanations besides stigma for our results. First, we address the possibility that our results are driven by doctor, rather than patient, behavior. To explore this possibility, we restrict the sample to the individuals who were treated for both depression and cardiovascular disease by the same doctor, and the doctors who treated two or more such patients (14,838 patients, 4192 doctors). We then regress the difference in under-reporting of depression and cardiovascular disease diagnosis on individual demographic and socioeconomic characteristics and doctor fixed-effects. Doctor fixed-effects are jointly *insignificant* in this regression, suggesting that doctor communication style is not driving differential under-reporting of mental illness relative to other conditions (F-statistic = 1.010, p-value = 0.345). Thus, we believe that doctor behavior is not a leading candidate in explaining our results.

Second, individuals may not recall that they have been diagnosed with a mental illness. This is unlikely in our setting as we only focus on recent treatments for depression. Moreover, if we only use the data on the prescription drug use in the past 12 months, the under-reporting rates of depression and other conditions change only slightly (32% and 15%, respectively). Another way of addressing this is shown in Appendix Figure B.3. Figure B.3 shows that among individuals who have been treated for depression for short periods of time, the under-reporting rate of mental illness diagnosis is higher than 50%. Among those who have been treated for depression for relatively long periods of time, the under-reporting rate of mental illnesses is close to 20%. Importantly, individuals are more likely to under-report mental illness compared to other conditions, irrespective of treatment intensity.[5]

Finally, we examine whether characteristics associated with mental illness under-reporting also predict health-seeking behavior. Appendix Table B.2 shows that males, individuals without university degree, and those from Asian, African, or Middle Eastern ethnic backgrounds are significantly more likely to under-report mental illness. We first identify individuals who are deemed to be in "need" of mental health treatment according to the Kessler Psychological Distress Scale (K10), as explained in Appendix A.2 (n = 1620). We then use the results from Appendix Table B.2 to predict the probabilities of under-reporting mental illness diagnosis and mental health drug use for these individuals. In the final step, we examine whether these predicted probabilities are correlated with treatment-seeking behavior in the *subsequent* 12 months.[6] Table 3 presents the results. Consistent with our initial hypothesis that stigma might play a role in preventing health care seeking, we find that individuals with a higher predicted probability of under-reporting are also less likely to seek mental health care (even though they are more likely to seek care from a GP).

4. Concluding remarks

Conditional on taking prescription medication, we find that individuals are significantly more likely to under-report mental

[3] Anxiety disorders are often treated with depression drugs (AMH, 2015).

[4] Zoloft (sertaline), Cipramil (citaloprim), and Efexor (venlafaxine).

[5] In the working paper version (Bharadwaj et al., 2015), we provide additional sensitivity checks.

[6] To perform this analysis, we need to make some sample restrictions, described in Appendix A.2.