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Poverty and Psychiatric Diagnosis in the U.S.: Evidence from the Medical Expenditure Panel Survey.

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Poverty and Psychiatric Diagnosis in the U.S.: Evidence from the Medical Expenditure Panel Survey.

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Abstract:

Background: A number of social programs are targeted at persons with psychiatric diagnosis with the intention of reducing poverty. Previous studies have shown that persons with psychiatric conditions are more likely to be

Introduction

This paper seeks to measure the prevalence, depth and severity of poverty for families with persons with psychiatric diagnoses in the United States using data from the 2007 Medical Expenditure Panel Survey.

To carefully and regularly assess poverty within families with psychiatric diagnosis is essential for several reasons. First of all, persons and families with diagnosis have been the target of several policies and programs aimed at reducing poverty, such as SSI (Supplemental Security Income). In 2002, 33.7% of working age SSI beneficiaries, and 28.1% of disabled workers on SSDI (Social Security Disability Insurance) had psychiatric disabilities (1). Since SSI beneficiaries with mental conditions are generally younger than other beneficiaries, these percentages keep growing (2). However, such benefits may not be sufficient to reduce poverty. Indeed, in 2006, SSI and SSDI recipients' average monthly incomes stood at \$470 and \$943 respectively (1). Furthermore, the purchasing power of such income support has not kept up with changes in the cost of living.

Secondly, it is already established that people with psychiatric diagnoses are more likely to be poor than persons without. Approximately one in three persons with psychiatric disabilities live at or below the federal poverty line, compared to 10% for persons without (1, 3). Kessler et al. found a \$16,306 difference in mean annual earnings between persons with psychiatric diagnoses and those without (4). However, available evidence is limited and outdated. We seek to add to this evidence using traditional economic tools to measure poverty. There has been little systematic effort to assess the extent, depth and severity of poverty in this group overall and by diagnosis type. In fact, much of the relevant literature on income deprivation is focused on working-age adults with disabilities (5, 6), with only an occasional breakdown by broad disability type, including psychiatric disability (3). Little is known on the relation between specific psychiatric diagnosis and poverty. This paper provides a first systematic attempt to portray poverty within this group and highlights several urgent needs for research on the economic wellbeing of families with psychiatric diagnosis.

Finally, there is ample evidence that there are vast disparities in employment and educational outcomes across diagnosis status, which would make one anticipate large and persisting disparities in poverty outcomes. Using the MEPS, Baldwin and Marcus show that persons with psychiatric diagnoses have a lower employment rate by 15-percentage points and lower mean hourly wages by 7-percentage points (7). Based on National Comorbidity Survey data, having a psychiatric disorder has been found to be significantly associated with higher dropout rates at every educational milestone (8) and low educational attainment is associated with lower earned income in general (9).

The paper breaks down as follows. First, we describe the methods used to calculate poverty measures, utilize survey data, and construct our analysis. Second, we present poverty profiles based on characteristics of the head of family, the family structure, and by diagnosis. We also present results of multivariate analysis to more closely assess the

association between psychiatric diagnosis and poverty after controlling for a number of other factors. Finally, we discuss our results in the context of the broader poverty literature and outline the limits of the study and potential next steps for research.

Methods

This study compares poverty profiles of families with at least one working age member who has been diagnosed with a psychiatric disorder to families without such a member.¹

Poverty Measures

We apply three poverty measurement tools that are commonly used in poverty research: poverty headcount, poverty gap, and poverty severity (10, 11). To begin a poverty analysis, one must use some acceptable poverty line to identify families as poor and non-poor. The *poverty headcount* (H), or poverty rate, is simply the number of families who fall below the poverty line and ar

This measure is higher for populations with greater inequality.

For each of the population segments detailed below, we will calculate and compare total income and its composition (y), poverty headcount (H), gap (PG), and gap-squared or severity (P_2) at the family level. We use the 2007 U.S. Census poverty thresholds adjusted for family size, number of children, and age of the family head to identify the poor. Because there is evidence of a significant financial burden associated with out-of-pocket expenditures (OOPs) for persons with psychiatric diagnoses (12) (13), we subtract the amount of OOPs from family income to account for the possibility that catastrophic medical expenses can push one into poverty. In addition, subtracting OOPs from income before comparing income to the poverty line has also been recommended by the National Academy of Sciences (14) and is part of the modern poverty measure under the recently filed Measuring American Poverty Act (2009). Family incomes, net of OOPs, are then compared to relevant U.S. Census poverty thresholds for 2007. A family is considered poor if the family's income net of OOPs falls below the threshold.

Data

This study utilizes data from the family component of the 2007 U.S. Medical Expenditure Panel Survey (MEPS). The MEPS is a nationally representative family survey on health care use, expenditures, payment sources, insurance coverage, income, employment, and education for the non-institutionalized civilian population. The MEPS provides data on a number of income sources (including wages, business/farm income, unemployment compensation, workers' compensation, interest, dividends, pension, social security, and SSI) and on medical OOPs.

The MEPS includes individuals' self-reported health and mental health conditions according to the International Statistical Classification of Diseases, Ninth Edition (ICD-9). Because persons with psychiatric diagnoses form a heterogeneous group, we construct the following five categories based on reported conditions: persons with stress and/or adjustment disorders (ICD-9 = 308, 309), persons with depressive or mood disorders (ICD-9 = 311); persons with anxiety disorders (ICD-9 = 300); persons with any combination of anxiety, mood and stress and/or adjustment disorders; and finally persons with psychotic diagnosis (ICD-9 = 295-298). This last category also includes persons who, in addition to a psychotic diagnosis, have any of the other mental diagnosis.²

Data Analytic Procedures

In the first step of the analysis, we identify families that contain at least one working age member (21–61 years) with psychiatric diagnosis.³ The study sample includes 9,218 families of which 2,186 have members with at least one of the above diagnoses.^{4,5} We

² We make no differentiation between individuals who report mental conditions for the entire year with those who report for part of the year.

³ We used 61 years as the cut-off point instead of 64 to avoid including persons who have transitioned to early retirement under the Social Security Administration Old Age program.

⁴ We include only observations that were defined as CPS families as of 12/31/2007.

compare families with diagnosis to those without diagnosis across characteristics of the head of family, including sex, age, race, marital status, educational attainment, employment status, and family-size. We provide both average total income and the income source distribution as well as calculate poverty measures for families with each of the specific diagnoses listed above. We use a two-sample t-test to determine whether differences in mean income and poverty measures are statistically significant across diagnosis status.

In the second step of the analysis, we compare families with specific structures. Past research suggests that the structural makeup of a family plays a complex and important role in understanding psychiatric health and poverty. In a recent study, researchers interviewed single mothers facing an upcoming decline in income as they neared the end of TANF eligibility and found that prevalence of major depression was twice that found in the U.S. female population, while anxiety disorder was 60% higher ((15), p. 254). Women cohabiting with a partner were shown to have a significantly lower prevalence of mood and anxiety disorder compared to women without a partner. Another study followed both single and married inner-city women for two years (16). Researchers found that single mothers had greater financial hardship despite higher full-time employment than their married counterparts. Additionally, single mothers were at a higher risk of having chronic, depressive episode with lack of support being cited as a primary concern. Because MEPS identifies structural relationships within the family, we are able to compare poverty measures across family size, families with children, families with cohabiting partners, and single-parent families. Again, two-sample t-tests are used to analyze poverty measure differences across the diagnosis status of the family.

Many family characteristics are associated with a greater likelihood of having income below the poverty line. Therefore, for our third step, we ran logistic regressions to analyze the association between having adult family members with any psychiatric diagnosis and the probability of a family having income below the poverty threshold, holding constant other important factors (female headed family, ethnicity, marital status, etc). Three such regressions were run in tota

We begin with a description of income sources and health expenditures for both families with and without psychiatric diagnosis, and across specific diagnoses in Table 1. Families with diagnosis have an 8.9% lower average total income compared to families without diagnosis (\$58,552 vs. \$64,279 respectively, $p < 0.01$). Of this total, wage income for families with diagnosis is 12% lower (\$50,347 vs. \$57,260, $p < 0.01$). This difference is offset by higher incomes for the average family with diagnosis from pensions, Social Security, and IRA (\$3,543 vs. \$2,909 for other families, $p < 0.01$) and government transfers (\$1,271 vs. \$518, $p < 0.01$). In addition to having lower incomes on average, families with psychiatric diagnosis have higher OOPs than other families (\$1,786 vs. \$1,122, $p < 0.01$). Differences in the average number of working-age adults in the family across diagnosis status are not statistically significant.

Comparisons across specific diagnosis suggest that families with more severe forms of psychiatric diagnosis have the lowest average total, wage, and investment incomes. Average total income for families with a member with combined anxiety, mood, and adjustment is \$53,722, while that of families with psychotic disorder is \$33,045, both of which are below the average for all families with diagnosis. Interestingly, families with adjustment disorder, on average, have higher total incomes than families with no diagnosis (\$72,835 vs. \$64,279). Families with diagnosis for multiple members have the highest average family income of all groups (\$77,373), however this is a function of also having the highest average number of working-age adults in the family (2.40 adults). Amongst various diagnosis categories, families with psychotic disorder have the lowest average out-of-pocket medical expenditures at \$1,407.

Head of Family Characteristics

Table 2 gives the income and poverty profiles for families containing at least one working-age adult. Prevalence of the combined five psychiatric diagnoses of interest for all families is 23.21% (adjustment, mood, anxiety, combination of the three, and/or psychotic). Median income was \$44,828 for families with psychiatric diagnoses compared to \$49,311 for families without. The poverty rate was higher for families of members with a diagnosis (17.59 to 12.43, $p < 0.01$), as was the poverty gap (9.24 to 5.87, $p < 0.01$) and severity measure (8.69 to 4.19, $p < 0.01$). The significance is that poor families with diagnosis are further below the poverty line, on average, compared to non-diagnosed families, and poor families with diagnosis suffer a wider distribution of

measures of poverty are higher for single persons than families, across poverty status. For example, P_2 severity for single persons with diagnosis quadruples the same measure for families with diagnosis (17.84 vs. 4.18, respectively).

Single-parent families show high poverty rates relative to other family structures, with 25.07% of non-diagnosed and 30.60% of diagnosed families living under the poverty line. Single-parent families with diagnosis have higher poverty rate, gap, and severity than single-parent families with no diagnosis ($p < 0.01$ for each measure). Comparing single-parent families to other families with children (either one child or two or more), we find higher poverty rate, gap, and severity for single-parent families across diagnosis status. Restricting comparisons to families without diagnosis, we find that single-parent families face higher poverty rates, gap, and severity than single persons (P_2 equals 8.89 vs. 6.01 respectively). The opposite is true for families with diagnosis, as single-parent families with diagnosis have lower poverty values compared to single persons with diagnosis (P_2 equals 10.86 vs. 17.84, respectively). Overall, these findings suggest that single persons and single-parent families face higher poverty severity than other families, a result that is even more pronounced when combined with psychiatric diagnosis.

Specific Diagnosis

Table 4 shows poverty profiles for multi-member families, single persons, and all families of working-age adults across specific psychiatric diagnosis. Poverty measures are higher for single-person families compared to multi-member families across every diagnosis. For mood disorders, the poverty rate of single persons is triple and poverty severity is 6 times that of multi-member families. For families with psychotic disorder, poverty gap and severity of single persons are triple that of multi-member families. Additionally, 30.12% of single persons with mood disorder and 46.26% with psychotic disorder live under the poverty line.

In addition, comparing these results of Table 4 to those on all households without diagnosis in Table 2, families with adjustment or anxiety disorder have poverty indicators that are close to those of families without a diagnosis. In contrast, families with mood or psychotic disorders have poverty severity two to three times that of families without diagnosis ($p < 0.01$). Overall, we find that the association between poverty and psychiatric diagnosis varies across diagnostic groups. A large and statistically significant correlation was found between poverty severity, on the one hand, and mood or psychotic disorder, on the other.

Multivariate Analysis

Multivariate analysis reported in Table 5 confirms results from the descriptive analysis. We implement a logistic regression to predict the probability of being poor based on the characteristics listed above. The coefficients represent odds ratios. We first study the entire sample. The odds of being poor for families with a psychiatric diagnosis are 1.76 times the odds of other families being poor ($p < 0.01$). Families where the head has no

high school degree were 4.10 times more likely to be poor ($p < 0.01$). Additionally, a single person is 4.24 times more likely to be poor than a multi-member family ($p < 0.01$).

Because characteristics could have varying effects on the odds of being poor across families with and without diagnosis, we also run the regression separately for each subsample. For families with and without diagnosis, a number of the variables have coefficients that are statistically significant: being black, being single, lacking high school education, being unemployed, having children, and living in a metropolitan area. For these variables, the odds ratios are generally similar in both the subsamples of

and psychotic disorders are face even greater severe poverty. Finally, the number of members in one's family has a significant correlation with poverty severity, with multi-member families facing less severity than single persons. This difference in severity is much greater for single persons with a psychiatric diagnosis and single-parent families with diagnosis of the family head. These results are consistent with those from the literature on mental health disparities and unemployment (1, 7), education (4, 8), race (18), and single parenting (15, 16).

Secondly, this study has several policy implications. While poverty reduction programs are in place to reduce poverty among families, in general, and among families with psychiatric diagnosis, in particular, results from this study suggest that these programs have not reduced the poverty levels of families with diagnosis to those of other families. Existing poverty reduction programs might not be sufficient to reach this population and further research and program evaluations are needed in this area. Additionally, this study points to a need to break the association between psychiatric diagnosis and poverty, perhaps with mental health policies that address poverty. Given the additional association between limited education, non-employment, and a psychiatric diagnosis, on the one hand, and severe poverty on the other, more holistic mental health policies, including recovery programs should be explored. In particular, programs that cover the social context of recovery in areas such as facilitating access to employment or education seem promising.

The analysis above has several limitations. The MEPS does not cover the institutionalized and congregate housing populations with psychiatric diagnoses, nor the homeless, and is therefore not representative of the entire working age population with psychiatric diagnoses. Thus, since our study omits groups with high concentrations of persons with psychiatric disorders who are likely to have low incomes, our estimates are likely to be low compared to a sample that would include all working age adults.

Our study also does not attempt to answer the question of what causes poverty, limiting the analysis to highlight family and individual characteristics that are statistically associated to poverty. The study does not address a possible two-way, causal relationship between diagnosis and poverty, with our regression results supporting only a strong association between the two. Conceptually, poverty and psychiatric diagnosis can be thought of as having a two-way relationship. Focusing on depression, Mirowsky and Ross outline the causal relationship between diagnosis, income, and poverty in two models (19). The "social cause" model begins with the assertion that lower income increases economic hardship, which in turn increases feelings of powerlessness and ultimately depression. The "social selection" model asserts that depression leads to decreased income, leading to economic hardship. Although the authors find some evidence that stresses low income as a causal force of depression, a complex, circular relationship cannot be ruled out especially.

Finally, a growing body of research broadens the scope of poverty beyond income, the focus of this paper. Poverty can be understood as a deprivation of well being, more precisely as a deprivation of practical opportunities (e.g., the opportunity to be educated

or to have decent work). This has come about from conceptual work, in particular A.K.

References

1. Cook J. Employment Barriers for Persons with Psychiatric Disabilities: Update of a Report for the President's Commission. *Psychiatr Serv* 2006; **57**: 1391-405.
2. Drake R, Skinner J, Bond G, Goldman H. Social Security and Mental Illness: Reducing Disability with Supported Employment. *Health Aff* 2009; **28**: 761-70.
3. Burkhauser R, Houtenville A, Rovba L. 2009. Poverty. In *Counting Working-Age People with Disabilities*. Kalamazoo, Michigan: UpJohn Institute for Employment Research; 192-226.
4. Kessler R, Heeringa S, Lakoma M, Petukhova M, Rupp A, Schoenbaum M, et al. Individual and Societal Effects of Mental Disorders on Earnings in the United States: Results from the National Comorbidity Survey Replication. *Am J Psychiatry* 2008; **165**: 703-11.
5. Stapleton D, Livermore G, She P. 2009. Options for Improving Disability Data Collection. In *Counting Working-Age People with Disabilities*. Kalamazoo, Michigan: UpJohn Institute for Employment Research; 381-418.
6. She P, Livermore G. Material Hardship, Poverty, and Disability among Working-Age Adults. *Social Science Quarterly* 2007; **88**: 970-89.
7. Baldwin M, Marcus S. Labor Market Outcomes of Persons with Mental Disorders. *Industrial Relations: A Journal of Economy and Society* 2007; **46**: 481-510.
8. Breslau J, Lane M, Sampson N, Kessler R. Mental Disorders and Subsequent Educational Attainment in a Us National Sample. *J Psychiatr Res* 2008; **42**: 708-16.
9. Muller A. Education, Income Inequality, and Mortality: A Multiple Regression Analysis. *BMJ* 2002; **324**: 23-5.
10. Ravallion M. Poverty Comparisons: A Guide to Concepts and Methods, Working Paper No. 88. Living Standards Measurement Study 1992.
11. Foster J, Greer J, Thorbecke E. Notes and Comments a Class of Decomposable Poverty Measures. *Econometrica* 1984; **52**: 761-76.
12. Bantnin J, Bernard D. Changes in Financial Burdens for Health Care: National Estimates for the Population Younger Than 65 Years, 1996 to 2003. *JAMA* 2006; **296**: 2712-9.
13. Lurie I, Manheim L, Dunlop D. Differences in Medical Care Expenditures for Adults with Depression Compared to Adults with Major Chronic Conditions. *J Ment Health Policy Econ* 2009; **12**: 87-95.
14. Citro C, Michael R, editors. *Measuring Poverty: A New Approach*. Washington, DC: National Academies Press; 1995.
15. Cook J, Mock L, Jonikas J, Burke-Miller J, Carter T, Taylor A, et al. Prevalence of Psychiatric and Substance Use Di

18. Han E, Liu G. Racial Disparities in Prescription Drug Use for Mental Illness among Population in U.S. *J Ment Health Policy Econ* 2005; **8**: 131-43.
19. Mirowsky J, Ross C. *Social Causes of Psychological Distress*. New York: Aldine de Gruyter, 2003.
20. Sen A. *Commodities and Capabilities*

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