Non-adherence to psychotropic medication in Primary Care: the role of socio-economic determinants

June 13, 2019
Definition – Non-adherence

- Failure to enter a treatment program, premature termination of therapy and incomplete implementation of instructions (including prescriptions) (Nosé et al., 2003)
Motivation

- Treatment non-adherence is relevant issue: estimated to cost the US health care system between $100 to $289 billion annually (Task Force for Compliance, 1994)

- Non-adherence is associated with:
  - Increase treatment costs: relapses, poor outcomes
  - Increase economic costs: higher LOS, rehospitalisations, absenteeism/reduced productivity at work, morbidity and mortality costs
Motivation

- Psychotropic drugs play a central role in the treatment of mental health disorders

- Treatment non-adherence: 20-50% in general population vs 70-80% schizophrenia and psychotic disorders:
  - Lack of insight of the disease, namely in patients with serious mental illness (SMI)
  - Frequency of treatment-related side-effects

- Annual adjusted cost of non-adherence per mental health patient: $3,252 and $19,363 (Cutler et al., 2018)
Research Questions

- What is the percentage of the Portuguese population who do not adhere to psychotropic medication, in primary care?

- What are the socio-economic determinants that may explain non-adherence?
Why Portugal? Why Primary Care?

Why Portugal?

- It has the second highest prevalence of psychiatric disorders (22.9%) among other European countries (Almeida et al., 2013)
- Due to the financial crisis of 2008:
  - Prevalence of mental health disorders increased (Almeida et al., 2016)
  - Socio-economic conditions deteriorated (Pedroso, 2014)

Why Primary Care?

- Higher percentage of patients are diagnosed/treated in primary care (23.7%) when compared to secondary care (17.4%) (Almeida et al., 2013)
- When patients are treated on an outpatient basis, they usually visit their primary care doctor who also can prescribe psychotropic drugs
Dataset and Approach

Dataset:
- All prescriptions and dispensed psychotropic drugs for each Health Centres belonging to the Center Region of Portugal (17% of all Portuguese population) – 77 municipalities
- Period analysis: 2009-2015
- Patients' information: age, municipality of residence

Approach:
- Definition of treatment non-adherence – patients who do not buy the prescribed medication (Primary non-adherence)
- Merge socio-economic variables according to patients' municipality of residence: unemployment rate, mean wage, # of doctors per 10,000 inhab., pharmacies index (per thousands), % of welfare recipients
- Analysis performed at municipality level
Descriptive statistics

- Total number of patients: 782,316
- 72.6% of patients who were prescribed with psychotropic medication are women
- Total number of prescriptions: 13 million
- Anxiolytics (37.7%) and Antidepressants (27.8%) were the most prescribed medications
Descriptive statistics

- Average rate of non-adherence: 21.3%

- Non-adherence rate is much higher in 2013 in all municipalities when compared to remaining years.

- AHS and antidepressants have the highest non-adherence rate (19.9% and 22.5%, respectively).
Methods

- What are the socio-economics determinants that might explain this result?

- Estimate the following equation using fractional probit model, controlling for unobserved heterogeneity:

\[
\text{adher}_{jt} = \alpha_0 + \alpha_1 \text{unemp\_rate}_{jt} + \alpha_2 \text{num\_physic}_{jt} \\
+ \alpha_3 \text{pharm\_index}_{jt} + \alpha_4 \text{avg\_wage}_{jt} + \alpha_5 \text{pct\_rsi}_{jt} \\
+ \alpha_6 \text{avg\_age}_{jt} + \alpha_7 \zeta_j + \epsilon_{jt}
\]

where,

- \( j \) indexes municipality
- \( t \) indexes year
- \( \zeta_j \) vector of time averages
### Results

<table>
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<tr>
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<th>Coefficients</th>
<th>APEs</th>
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<tr>
<td>unemp_rate</td>
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<td>0.011</td>
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<tr>
<td>pct_rsi</td>
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</table>

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

- Increase 1 pp on % of welfare recipients and unemployment rate has a positive impact on non-adherence rate of 1.5 and 1.1 pp, respectively.
- The number of physicians and average wage are negatively associated with non-adherence rate.
- AHS and antidepressants: higher coefficients.
Possible explanation for the peak 2013: information system failure, more prescriptions without the presence of the patient

Unemployed and welfare recipients: limited financial capacity
  - Unemployed have worst mental health status
  - Portugal has the highest youth unemployment rate compared to other European countries
  - Negative relationship between youth unemployment and perceived mental health
  - Welfare recipients: might be related to illiteracy (important non-adherence factor)

Youth: forgetfulness, carelessness, and self-stigma.
Conclusion

- Our results are capturing the effect of adverse economic conditions on non-adherence to psychototropic medication.

- Policies focusing on unemployment benefits can improve mental health status and may allow individuals to afford medication.

- Integration of mental health in the benefit system.

- Implementation of an additional co-payment for welfare recipients and unemployed (youth).
Thank You!