

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

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Definition – Non-adherence

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

- 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

- 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)

- 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?

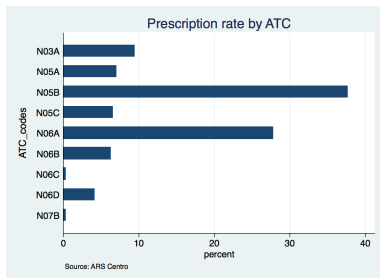
Why Portugal? Why Primary Care?

- 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

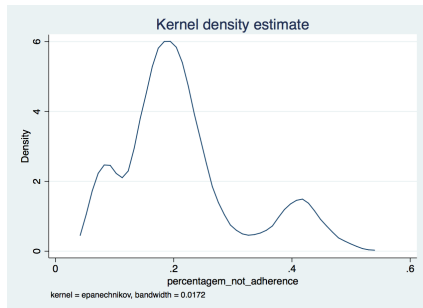
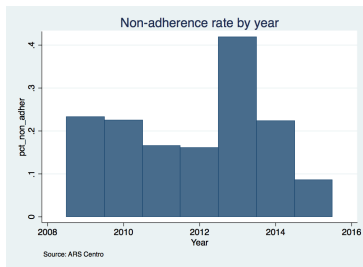
- Dataset:
 - All prescriptions and dispensed psychotropic drugs for each Health Centres belonging to the Center Region of Portugal (17% of all Portuguese population) – 77 municipalities
 - Period analysis: 2009-2015
 - Patients' information: age, municipality of residence
- Approach:
 - Definition of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



- 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)

- What are the socio-economics determinants that might explain this result?
- Estimate the following equation using fractional probit model, controlling for unobserved heterogeneity:

$$\begin{aligned}n_adher_{jt} = & \alpha_0 + \alpha_1 unemp_rate_{jt} + \alpha_2 num_physic_{jt} \\ & + \alpha_3 pharm_index_{jt} + \alpha_4 avg_wage_{jt} + \alpha_5 pct_rsi_{jt} \\ & + \alpha_6 avg_age_{jt} + \alpha_7 \zeta_j + \epsilon_{jt}\end{aligned}$$

where,

- j indexes municipality
- t indexes year
- ζ_j vector of time averages

	Coefficients	APEs
unemp_rate	0.038***	0.011
pct_rsi	0.053***	0.015
num_physic	-0.02**	-0.006
avg_wage	-0.001**	-0.0003
mean_age	-0.031**	-0.009
pharm_index	0.033*	0.009
N	539	

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

- 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.

- Our results are capturing the effect of adverse economic conditions on non-adherence to psychotropic 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!

