Burden of disease and cost of illness of Treatment-Resistant Depression (TRD) and Major Depression with Severe Suicide Risk (MDSSR)

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BACKGROUND AND OBJECTIVE

BACKGROUND

- Depression is associated with deficits in individuals' professional, social, and personal functioning, contributing to decreased patients' quality of life. In its most severe form, the depressive disorder can lead to suicide. [1-2]
- Global estimate is that >300 million individuals (4.4% of the world population) are affected by depression. Portugal is the second country in Europe with the highest prevalence of psychiatric diseases, and mood disorders had a prevalence of 7.9% in 2007. [1] [3]
- Treatment-resistant depression (TRD) refers to an inadequate response to at least one antidepressant, with adequate dose and duration, in patients with depression. These patients tend to have higher incidence of other psychiatric comorbidities, inability to work, absenteeism, more frequent hospitalizations, which consequently generates higher costs to the health system. [4-6]
- Suicidal ideation can occur in several psychopathological contexts, namely in depressive pathology. In the pharmacological treatment of patients with depression with severe suicide risk, the drugs must have a rapid and early effect. [7]

OBJECTIVES

- Estimate the burden of disease of TRD and MDSSR in Portugal, analyzing its main dimensions – Prevalence, Mortality and DALYs.
- Quantify society's cost of illness (CoI) associated with TRD and MDSSR, including both direct (medical and non-medical) and indirect costs, providing healthcare policymakers evidence to support decision making.
- Raise awareness on mental diseases in Portugal and thus bringing empowerment to the depression patients' community.

METHODS

- Burden of disease was assessed considering the impact in terms of DALY (disability adjusted life years), including Years of Life Lost (YLL), measuring premature mortality due to the disease; and Years Lost due to Disability (YLD), the number of years patients lose while living with disability due to the disease.
- Costs were estimated considering the societal perspective, using a prevalence-based model. Direct costs for the health care system and indirect costs were estimated for year 2017, with indirect costs resulting from the reduction in productivity of the labor force. Estimates were based on multiple sources of information, including the National Epidemiological Study on Mental Health (NESMH), the Hospital Morbidity Database, data from Statistics Portugal on population and causes of death, official data on wages, statistics on the pharmaceutical market, and expert opinions.

MAIN LIMITATIONS

- The primary epidemiological data source of the present study was the National Epidemiological Study on Mental Health (NESMH) with field work taking place in 2008-2009. Despite NESMH's quality, the non-availability of more recent data is a limitation. An extrapolation of results to the 2017 population was made.
- In the NESMH data used, psychiatric disorders were assessed through comprehensive and fully structured interviews designed by the World Mental Health Surveys Initiative, the World Health Organization, and Harvard University, but the diagnosis was not verified by physicians.
- Source databases used for hospitalizations and emergency room visits include mainly public hospitals.

REFERENCES

[1] World Health Organization. Depression and other common mental disorders: Global health estimates [Internet] [Internet]. 2017. Available from: https://apps.who.int/iris/bitstream/handle/10665/254610/WHO-MSD-MER-2017.2-eng.pdf; [2] Sousa JSP de. Epidemiologia, etiopatogenia, diagnóstico e tratamento farmacológico da depressão em Portugal. Universidade Fernando Pessoa; 2015; [3] Caldas-de-Almeida, J., et al. Estudo epidemiológico nacional de saúde mental: 1ª Relatório [National 2 Mental Health Epidemiological Study - 1st Report]. 2013; [4] Gaynes BN, Lux L, Gartlehner G, Asher G, Forman-Hoffman V, Green J, et al. Defining treatment-resistant depression. Depress Anxiety. 2020 Feb;37(2):134–45; [5] Fava M, Davidson KG. Definition and epidemiology of treatment-resistant depression. Psychiatr Clin North Am. 1996 Jun;19(2):179–200; [6] Kolar D. Addictive potential of novel treatments for refractory depression and anxiety. Neuropsychiatr Dis Treat. 2018;14:1513–9; [7] Roca M, et al. Suicidal risk and executive functions in major depressive disorder: a study protocol. BMC Psychiatry. 2019 Aug;19(1):253; [8] Butterworth P, Rodgers B. Mental health problems and marital disruption: is it the combination of husbands and wives' mental health problems that predicts later divorce? Soc Psychiatry Psychiatr Epidemiol. 2008 Sep;43(9):758–63; (9) Kessler RC. The costs of depression. Psychiatr Clin North Am. 2012 Mar;35(1):1–14; (10) Kessler RC, et al. Social consequences of psychiatric disorders, I: Educational attainment. Am J Psychiatry. 1995 Jul;152(7):1026–32; (11) Kessler RC, Walters EE, Forthofer MS. The social consequences of psychiatric disorders, III: probability of marital stability. Am J Psychiatry. 1998 Aug;155(8):1092– 6.

FUNDING AND DISCLOSURES

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RESULTS & DISCUSSION

BURDEN OF DISEASE

- The prevalence of TRD only, MDSSR only, and the combined prevalence of both was 143.162 and are represented in Table 1. The prevalence is higher in women in both types of depression.

Measure	TRD	MDSSR	TRD + MDSSR	Total
Prevalence - n. patients (%)	79.401 (0.98%)	52.479 (0.65%)	11.283 (0.14%)	**143.162**

Table 1. TRD and MDSSR - Prevalence and Years of Life Lost due Disability (YLD)

- The disease burden due to disability generated by TRD alone, by MDSSR alone, and joint TRD+ MDSSR totals 50.730 DALY (Figure 1); with women representing 68% of this YLD total (Figure 2).

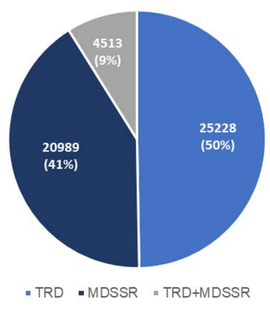


Figure 1. Years of Life Lost due Disability (YLD)

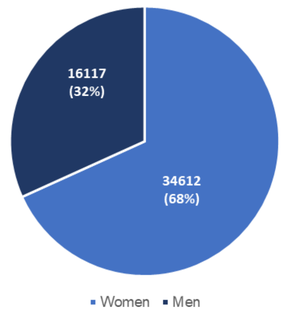


Figure 2. Years of Life Lost due Disability (YLD)

- The disease burden due to premature death by suicide, attributable to TRD and MDSSR, was 15.627 DALY; with men representing 73% of this YLL total. The deaths by suicide attributable to TRD and MDSSR were 50,6% of total suicides.
- The estimated total disease burden was 66.358 DALY, with YLD representing 76,4% of total (Figure 3) and with women representing 58.5% of total (Figure 4).

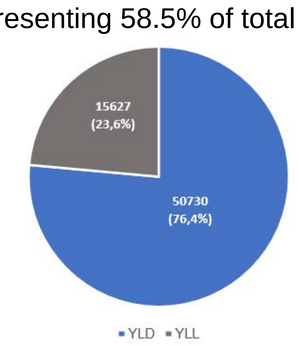


Figure 3. Disease burden in YLD and YLL

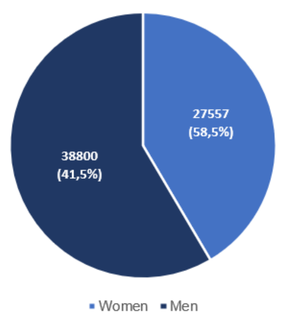


Figure 4. Disease burden by gender

COST OF ILLNESS

- The total annual cost associated with TRD and MDSSR patients in Portugal was estimated to be €1,102.million. This value is split into €30.7 million of direct costs (2.8%) and €1,072 million (97.2%) of indirect costs (Table 2).

Rubric	Total costs	% of Total Costs	% of Direct or Indirect Costs
Total Costs	**€1.102.469.201**	**100%**	----------
Total Direct Costs	**€30.779.743**	**2.8%**	**100%**
Hospitalizations	€3.083.109	0.28%	10.0%
Pharmacological therapy	€10.468.895	0.95%	34.0%
Tests and ancillary services	€4.049.524	0.37%	13.2%
Medical appointments/visits	€12.353.851	1.12%	40.1%
Emergency episodes	€824.364	0.07%	2.7%
Total Indirect Costs	**€1.071.689.458**	**97.2%**	**100%**
Absenteeism and Presentism	€180.298.279	16.35%	16.8%
Employment reduction	€834.786.764	75.72%	77.9%
Premature death	€56.604.415	5.13%	5.3%

Table 2. TRD and MDSSR direct and indirect costs by category

- The major component in direct costs is medical appointments/visits, which accounts for 40.1% of total direct costs. This item is greatly heightened by the ambulatory psychiatry and general practitioners' appointments.
- The estimated indirect costs are much higher than the direct costs. Adding the productivity losses due to the reduction in the level of employment, absenteeism, presentism, and loss production due to premature death, a total cost over € 1 billion is obtained. Indirect costs account for 97,2% of TRD and MDSSR's total cost, with women accounting for 63,3% of this amount.
- The major factor for TRD and MDSSR's costs is employment reduction, which represent 75,72% of total costs.

CONCLUSION

- In addition to the years of life lost and to the direct and indirect costs, TRD and MDSSR have very negative effects in various dimensions relevant to the well-being and health of the affected population. These additional dimensions include the impacts of depression on educational outcomes, on the formation and stability of marital unions, on fertility, or even on the quality of parental care. In the economic area, in addition to the estimated effects on the labor market, there are indications of impact in other areas of financial performance of affected individuals. [8-11]
- Although TRD and MDSSR represent relatively small direct costs for the health system, they have a significant disease burden and productivity costs for the Portuguese economy and society that are highly relevant, making these areas a priority for obtaining health gains.
- The results presented aim to raise social-economic awareness of TRD and MDSSR, allow the definition of disease management strategies and support prioritization on resource allocation. Moreover, this study will set a basis for the thorough assessment of the real burden of TRD and MDSSR in the Portuguese healthcare system and society overall.