

LETTERS TO THE EDITOR

Population density, depressive symptoms, and suicidal thoughts

Braz J Psychiatry. 2020 Jan-Feb;42(1):105-106
doi:10.1590/1516-4446-2019-0541



Considering the high prevalence of depression worldwide and the increasing burden of consequent disability,¹ identification of potential sociodemographic characteristics associated with this health concern on a nationwide level should be sought to support targeted public policies. In this sense, an interesting paper was published on April 15, 2019, in the *Brazilian Journal of Psychiatry* (then ahead of print; now in a regular, paginated issue). Carpena et al.² extended the knowledge about the association between major determinants and depressive symptoms and found no association of gross domestic product per capita, the Gini index, Psychosocial Care Centers per 20,000 population, and Family Health Strategy per 1,000 population with elevated depressive symptoms or suicidal thoughts. On the other hand, the authors found that men, living with a partner, having a higher assets index, higher educational status, living in a rural area, and a lower number of residents per household were associated with a lower likelihood of depressive symptoms and suicidal thoughts.

We consider the findings of Carpena et al.² of great interest for public health, and the aim of this letter is to include an important factor in this discussion: population density. This indicator, obtained by dividing the number of inhabitants by total geographic area, has been associated with mental disorders in developed countries.^{3,4} Thus, we replicated the procedures of Carpena et al.² with estimates of population density by state provided in the latest Brazilian demographic census (2010). Unlike Carpena et al.,² we considered population density as continuous in the models; we also divided population density into tertiles and analyzed the highest population density (tertile 3) vs. tertiles 1 and 2, as well as the lowest population density (tertile 1) vs. tertiles 2 and 3. We also present models by sex and include the following covariates in the analysis: sex (whole sample), race, chronological age, educational status, employment status, intake of sugary

foods (7 days/week), habitual physical activity (≥ 150 min/week), TV-watching (≥ 4 h/day), and tobacco smoking. These variables were self-reported through specific questionnaires, which have been previously described.⁵

We observed that higher population density (highest tertile) was associated with a 21% higher likelihood of elevated depressive symptoms among women and a 21% higher likelihood of suicidal thoughts among men, regardless of sociodemographic and lifestyle covariates (Table 1). Corroborating these findings, women in the lowest tertile of population density were 17% and 20% less likely to present elevated depressive symptoms and suicidal thoughts, respectively (Table 1). When analyzed continuously in the models, population density was only associated with higher suicidal thoughts.

These results add information to the conclusions of Carpena et al.² and extend previous findings from developed countries about the association between population density and mental health^{3,4} to a middle-income context. Although obtained from cross-sectional data, this information supports the notion of a negative effect of urbanization on mental health of the population. An example can be found in previous research from the São Paulo megacity, where an elevated prevalence of mental disorders was observed in people living in this metropolitan area, which has the highest population density of any place in Brazil.⁶ Public health policies targeting depression should focus on regions with higher population densities.

André O. Werneck,¹  Danilo R. Silva² 

¹Departamento de Educação Física, Universidade Estadual Paulista (UNESP), Presidente Prudente, SP, Brazil. ²Departamento de Educação Física, Universidade Federal de Sergipe (UFS), São Cristóvão, SE, Brazil.

Submitted May 07 2019, accepted Sep 10 2019.

Acknowledgements

This research received no specific funding. AOW is supported by Fundação de Amparo à Pesquisa do Estado de São Paulo (FAPESP; process 2017/27234-2 and 2018/19183-1).

Disclosure

The authors report no conflicts of interest.

How to cite this article: Werneck AO, Silva DR. Population density, depressive symptoms, and suicidal thoughts. *Braz J Psychiatry*. 2020;42:105-106. <http://dx.doi.org/10.1590/1516-4446-2019-0541>

Table 1 Association between population density, elevated depressive symptoms, and suicidal thoughts (n=60,202)

	Elevated depressive symptoms	Suicidal thoughts
Continuous		
Model 1		
Whole sample	1.0006 (0.9999-1.0012)	1.0004 (0.9996-1.0012)
Men	1.0004 (0.9996-1.0012)	1.0010 (1.0003-1.0017)
Women	1.0005 (0.9998-1.0012)	1.0002 (0.9992-1.0011)
Model 2		
Whole sample	1.0005 (0.9998-1.0012)	1.0005 (0.9997-1.0014)
Men	1.0004 (0.9996-1.0011)	1.0010 (1.0003-1.0017)
Women	1.0005 (0.9998-1.0012)	1.0003 (0.9994-1.0013)
Highest population density (Highest tertile)		
Model 1		
Whole sample	1.22 (1.06-1.40)	1.15 (0.96-1.38)
Men	1.16 (0.98-1.37)	1.23 (1.03-1.48)
Women	1.21 (1.04-1.39)	1.10 (0.90-1.35)
Model 2		
Whole sample	1.20 (1.04-1.38)	1.15 (0.97-1.38)
Men	1.13 (0.96-1.33)	1.21 (1.02-1.44)
Women	1.21 (1.05-1.40)	1.12 (0.92-1.38)
Lowest population density (Lowest tertile)		
Model 1		
Whole sample	0.82 (0.72-0.95)	0.83 (0.70-0.98)
Men	0.86 (0.72-1.01)	0.84 (0.69-1.02)
Women	0.83 (0.72-0.95)	0.84 (0.69-1.01)
Model 2		
Whole sample	0.84 (0.73-0.96)	0.81 (0.69-0.95)
Men	0.87 (0.74-1.03)	0.85 (0.70-1.02)
Women	0.83 (0.72-0.96)	0.80 (0.67-0.97)

Data presented as odds ratio (95% confidence interval).

Model 1: crude model; model 2: adjusted for sex (whole sample), race, chronological age, educational status, employment status, intake of sugary foods, physical activity, TV-watching, and tobacco smoking.

References

- 1 GBD 2017 DALYs and HALE Collaborators. Global, regional, and national disability-adjusted life-years (DALYs) for 359 diseases and injuries and healthy life expectancy (HALE) for 195 countries and territories, 1990-2017: a systematic analysis for the Global Burden of Disease Study 2017. *Lancet*. 2018;392:1859-922.
- 2 Carpena MX, Martins-Silva T, Costa FS, Darley R, Loret de Mola C. Contextual risk factors of depression and suicidal thoughts in Brazilian adults: a multilevel analysis. *Braz J Psychiatry*. 2019;41:433-6.
- 3 Sundquist K, Frank G, Sundquist J. Urbanisation and incidence of psychosis and depression. *Br J Psychiatry*. 2004;184:293-8.
- 4 Sariaslan A, Larsson H, D'Onofrio B, Långström N, Fazel S, Lichtenstein P. Does population density and neighborhood deprivation predict schizophrenia? A nationwide Swedish family-based study of 2.4 million individuals. *Schizophr Bull*. 2015;41:494-502.
- 5 Instituto Brasileiro de Geografia e Estatística (IBGE). Pesquisa Nacional de Saúde 2013 [Internet]. 2014 [cited 2019 Nov 30]. biblioteca.ibge.gov.br/visualizacao/livros/liv94074.pdf
- 6 Andrade LH, Wang YP, Andreoni S, Silveira CM, Alexandrino-Silva C, Siu ER, et al. Mental disorders in megacities: findings from the São Paulo megacity mental health survey, Brazil. *PLoS One*. 2012;7:e31879.

Sexual stigma, attachment difficulties, and emotional dysregulation among patients with severe mental illness

Braz J Psychiatry. 2020 Jan-Feb;42(1):106-108
doi:10.1590/1516-4446-2019-0635



Sexual behavior is directly affected by mental illness sexual stigma (MISS). Previous studies have shown high rates of MISS¹ and a correlation with high-risk sexual behavior.² However, those studies enrolled predominantly psychiatric outpatients. So far, little is known about the relationship between stigmatization, love life, and sex life in highly dysfunctional psychiatric patients. This pilot study, conducted with full Ethics Committee approval, described the sexual behavior and romantic relationships as well as investigated the correlation among depression, anxiety, type of attachment, and MISS in patients referred to treatment for severe mental illness (SMI) at the day hospital of a tertiary care center in São Paulo, Brazil.

The inclusion criteria were a diagnosis of SMI, age 18 years or older, literacy, cognitive ability to complete the