Reviewer’s report

Title: Supplier-induced demand for psychiatric admissions in Northern New England

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Reviewer: Andreas Isidorus Wierdsma

Reviewer’s report:

This is a well written paper with interesting methodological comments on some of the difficulties in analyzing geographic service use patterns. The authors hypothesized that analyses based on Psychiatric Hospital Service Areas would yield more meaningful results than the use of general medical HSAs (mostly without a psychiatric unit). The primary hypotheses were: a) substantial geographical variation in psychiatric admissions rates and b) positively correlated with bed availability.

However, ‘more meaningful results’ are limited to better localization indices - defined as the percentage of admissions per PHSA that are admitted to a psychiatric hospital within the area. It is unclear whether these areas are relevant for planning psychiatric services and development and implementation of general healthcare policies. Moreover, correlation of geographic variation of psychiatric admission rates and bed availability does not necessarily reflect a “Supplier-induced demand for psychiatric admissions”. As the authors clearly state in the study limitations, measures of population-based need and alternative mental health care services, including state psychiatric hospitals, were not included in the study. These limitations restrict the generalizability of the results and raise questions to the idea of a supplier-induced demand.

Discretionary Revisions

The introduction includes eight lines on high costs of (inpatient) mental health care. In this way, all psychiatric disorders and types of treatment are lumped together, which would be unheard of in other healthcare domains. Comparing these costs to the total costs of all inpatient treatment would put high costs of inpatient mental health care in perspective.

The authors notice that no randomized clinical trial has been conducted to demonstrate effectiveness for inpatient care in a general psychiatric population. I guess because that would be impractical if not unethical. RCT’s have there limits and longitudinal or ecological quasi-experimental studies have their merits. There are many studies comparing inpatient care with alternative services and routine outcome monitoring data can be used to study effectiveness for inpatient care.

In the method-section the paragraphs ‘Comparison of population-based bed supply and admission rate’ and ‘Analysis’ overlap.
Minor Essential Revisions

Table 1 presents information on characteristics of psychiatric admissions by state, showing that there are few underlying differences in the numerator of the admission rates, but there is no information about the denominator. Population differences would also be very helpful to readers from outside the USA who are not familiar with the states/regions to which this study is confined.

Figure 1 does not add much to the method section, whereas a graphic presentation of the determination of Psychiatric Hospital Service Areas would be very helpful.

Figure 2 needs a colour printer and the admission rates categories are not balanced (ranges varying from 1.4 to 4.1). Different categories could change the pattern and perhaps reveal high admission rates in Maine (5 out of 6 highest rates are in Maine), mixed rates in Vermont, and low rates in New Hampshire (4 out of 6 lowest rates).

Figure 3 is misleading because you can't plot a linear regression line on a graph when you've analyzed it with rank correlation.

Major Compulsory Revisions

It is conventional to separate out demographic differences across areas from true area (e.g. supplier-induced) effects. In general, standardisation is better than analysing crude admission rates.

Hospitalization datasets were obtained for 1997 so that variability in admission rates within PHAs was not taken into account. One year admission rates can fluctuate especially in relatively low populated areas, which could be relevant in the evaluation of the use of PHSAs versus general HSAs. In addition, hospital admission rates can be difficult to interpret because areas with low bed-to-population ratios and few alternative healthcare services may show revolving-door utilization patterns.

The main research questions should be discussed in the context of the vast body of literature on geographical variations in mental health and service use. Several reviews have mapped the research field and cover topics that could be relevant to this paper’s research questions, including distance from a mental hospital as predictor of utilization (“Jarvis’s Law”) or the effect of sprawl (low population density, high automobile dependence) on people with disabilities or severe mental disorders. Some useful reviews are: Holley, H. L. 1998. Geography and mental health: a review. Soc Psychiatry Psychiatr Epidemiol 33:535-542; Philo, C. 2005. The geography of mental health: an established field? Curr Opin Psychiatry 18:585-591; Yanos, P. T. 2007. Beyond “Landscapes of Despair”: The need for new research on the urban environment, sprawl, and the community integration of persons with severe mental illness. Health & Place 13 672-676.
Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:
I declare that I have no competing interests