Reviewer’s report

Title: A retrospective analysis of determinants of involuntary psychiatric in-patient treatment

Version: 0 Date: 29 Jul 2018

Reviewer: Louk Van Der Post

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General remarks

The authors explore the social and clinical factors that are associated with involuntary psychiatric admission in the German city of Cologne. The main limitation of this study is the fact that it followed a retrospective design instead of a prospective one. It is also a limitation that retrospective studies that identify factors associated with involuntary admission already have been done many many times before and therefore it is not surprising that this study does not add new perspectives.

The English certainly needs revision of a native speaker.

Background

In this paragraph the authors do not pay attention to the fact that laws and regulations for involuntary psychiatric admission differ between countries. Also the way (community) mental health care is organised makes a big difference. Therefore it may be useful to mention with each reference the country where the research took place.

I like to see a clear and concrete description of the aim of this research at the end of the introduction paragraph. What are the specific questions the researchers want to find answers to and what could be the clinical relevance of the findings? In other words, why is it important to know what the authors want to know (see also my final remarks at the end).

Methods

We need here a clear description of the specific Cologne mental health care setting. Also a short description of the way the PsychKG NRW works could be useful. The foreign readers need definitely more context. Otherwise they cannot understand and interpret the results of this study.

The explanations in the statistical analysis paragraph are not sufficient.

What do the authors mean by We weighted the samples of voluntary patients according to their share of all voluntary patients of the respective hospital? How was the random sample of voluntary patients matched with the sample of involuntarily admitted patients?
Furthermore, for a person unfamiliar with the technique of decision tree analysis using CHAID, the explanation of this technique is not easy to understand. The same applies to the description of the results of decision tree analysis in the results paragraph. Why using this specific technique? What are the advantages compared to multivariate binomial logistic regression? In the discussion paragraph I found the sentence CHAID was superior to logistic regression [25] as it allowed us to identify and further characterize the risk groups described above. But this explanation is rather vague. At least for a person not familiar with the technique.

Results

Please refer to the tables (numbers) when you present the data in this paragraph. Present the data here with the percentages (proportions, means etc.) and the test results (X2 p value etc.). Instead of presenting these concrete data in the discussion paragraph.

Discussion.

The discussion paragraph shoes redundancies. The same facts are repeatedly mentioned and overlap substantially with the results paragraph. This isn't useful.

The fact that elderly and retired people and patients with organic mental disorders are overrepresented in the sample of patients treated under the PsychKG NRW, means that in Cologne patients with dementia are admitted to general psychiatric hospitals. This is not the case everywhere. In neighbouring countries (like the Netherlands) these patients are being admitted to specialised psychogeriatric nursing homes. So the way mental health care is organised influences the outcome of this kind of study. This has to be discussed in the discussion paragraph. A comparison with studies in other countries which different ways of organising mental health care and different outcomes regarding diagnostic groups and age is lacking here.

At the end of this paragraph the notion pops up (although implicitly) that the authors aim at reduction of involuntary treatment. Apparently the authors feel that involuntary admissions has to be prevented as much as possible. And presumably this forms the reason for their wish to know the predictors of involuntary admissions. This is all very much OK off course, but… this has to be explained in the background paragraph!

**Are the methods appropriate and well described?**
If not, please specify what is required in your comments to the authors.

No

**Does the work include the necessary controls?**
If not, please specify which controls are required in your comments to the authors.

Yes
Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
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