Title: Changes in mental health services and suicide mortality in Norway: an ecological study

Version: 2 Date: 28 May 2010

Reviewer: H Bickley

Reviewer's report:

Discretionary revisions:
Journal Paper review-
Changes in mental health services and suicide mortality in Norway: an ecological study.

This paper describes a national ecological study in Norway looking at the statistical association between changes in mental health service provision and rates of suicide in the general population.

The authors identify an important gap in our existing knowledge of whether changes in mental health services can impact on suicide rates, not only for Norway, but in the international literature as well.

The authors test the statistical relationship between the suicide rate and 9 other variables.

5 of these variables are objective measures of the mental health service provision (3 in-patient measures, 1 out-patient measure and 1 joint measure), 1 is mental health medication prescribing and 3 are socio-demographic-cultural indicators.

Most of my points relate to confounders, which I appreciate often cannot be included in the statistical analysis, but are worth thinking about.

Norwegian Healthcare System

It might be handy to have a little bit more background on the Norwegian Healthcare System. Ie is it like the United Kingdom's NHS-National Health Service, or the USA Healthcare System? Is treatment free; who pays for the medication and other treatment; do people pay healthcare insurance? How prevalent is private healthcare insurance? Has the training of mental health staff changed markedly prior to or during the study period? Is the Norwegian Healthcare System similar to the UK one with Primary Care – GPs General Practitioners and Secondary Care-specialists.

Health Service Measures

This study uses the number of man-labour years by psychiatrists as a health service measure. However, the suicide rate could have been influenced by other clinical/nursing/psychologist staffing rates. Also the proportional amount of time spent on administration and clinical time may have varied over the study period.
Have there been changes in the number of positions filled by locum psychiatrists?

Methods section, paragraph 3 refers to man-labour years by 'specialists in psychiatry'. It might be worth explaining at this point to the international readership that this refers specifically to medical doctors who have specialised trained in psychiatry.

Is there evidence on whether the people who die were receiving mental healthcare, or whether they had not been engaged in mental healthcare, or had become disengaged from mental healthcare?

Confounders
All such studies test relationships between data which may be influenced by other variables not allowed for in the analysis, ie confounders.

I suggest that any of the following may be relevant confounders affecting the results in this study. I appreciate that in most cases it is not possible to statistically remove the potential effects of these from study data.

It is plausible that the changes made to the mental health services did make suicide less likely than it would have been without these changes, but in addition to these there were other factors at work influencing the suicide rates. For example, changes in social/lifestyle problems such as drugs, social fragmentation, family/relationship breakdowns, media reporting, exercise, diet, expectations.

Media reporting of suicide can influence suicide rates – were there any high profile suicides in Norway in the study period which may have influenced people and prompted copycat suicides, particularly in the younger age groups?

Were there any changes in the lethality of suicide methods in the study period? Eg availability of less toxic medication, carbon monoxide (vehicle/cooking/heating gas), firearms.

Medication
The study assesses the impact of sales of antidepressants. It might be useful to note here in the Methods section paragraph 6, that these are sales to pharmacies, and not necessarily medication acquired by patients, and not necessarily taken by patients. Just because medication is prescribed it does not mean that the patient consumed it. The antidepressants group is made up of different types of antidepressants. Collecting all these into one group could be hiding differences in suicide rate in people taking different types of antidepressant.

The study does not measure the impact of other psychotropic medication, nor other treatments eg talking therapies; ECT-Electro Convulsive Therapy. Have these increased or decreased in the study period?

Psychiatric diagnosis
Has there been a change in the proportion of psychiatric diagnoses within the mentally ill population during the study period? Presumably there was an increase in drug misuse in the study period?
Has the suicide rate been influenced the most by people with mental illness, or by the rest of the general population? It would be interesting to see if there were statistical associations if just the mentally ill group were included, whether this were people who had ever had contact with mental health services, or whether this was people who had had recent contact with mental health services. Are there any Norwegian records which could help answer this question?

Other country's studies

USA study-Tondo et al, 2006.

The above 3 studies have found a statistical relationship between mental health services and suicide rate. However, the variables used do differ from the current authors' study. Eg Kapusta et al used density of psychotherapists.

Do the authors have any other opinion as to why their study could not match the results of these 3 studies?

Methodology

The authors' methodology is straightforward and appropriate. They use a large national sample, covering many years. The statistical methodology seems appropriate.

It is unfortunate that there are only regional data from 1998-2006 and not for 1990-1997, but the authors have understandably used the nearest proxy measure, the national figures. Again this is true of the missing 1998 alcohol sales figure. The change in the study period from ICD-9 to ICD-10 should not be a problem. The time period of implementation of investment is stated as 1999-2008 which is only part of the study period. However, this should not matter given that the suicide rates are statistically compared to the 5 specific health service measure variables.

Methods section, paragraph 4: “In addition we analyzed for linear trends in the period 1990-2006.” it might be worth adding in “in these 4 variables” after the word “trends”, for clarity.

A measure of alcohol sales was used. Can the authors find any statistics on illegal drug consumption which could be a confounding variable?

Results

Could males and females/age groups be analysed separately in case any particular group’s suicide rate corresponded with the tested variables?

I liked the clarity of the results, with the rate ratios and confidence intervals in results paragraph 1, and the units referred to in results paragraph 3.

Discussion

The authors succeeded in their stated aim of investigating the statistical link between increased mental health service resources and suicide mortality. Additionally they assessed the statistical link with the other 4 variables. Their
discussion comments were all relevant. As they say, to reduce the the suicide rate it may be necessary to use public health strategies rather than rely on increased/enhanced clinical treatments. I would have liked to see a statistical association showing that measurable mental health service inputs can be correlated to reduced suicide rates, but sadly this study has not been able to do this. Hopefully another future study will do this.

References

Some of the references are to internet websites. It might be useful if they state which dates they accessed the websites, as information on websites is subject to change.

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:

i declare that i have no competing interests