Reviewer’s report

Title: Factors associated with requesting and receiving euthanasia: A nationwide mortality followback study with a focus on patients with psychiatric disorders, dementia or an accumulation of health problems related to old age.

Version: 0 Date: 27 Dec 2018

Reviewer: Manuel Trachsel

Reviewer's report:

The submitted research article 'Factors associated with requesting and receiving euthanasia: A nationwide mortality follow-back study with a focus on patients with psychiatric disorders, dementia or an accumulation of health problems related to old age' addresses a very important topic for which, to date, almost no empirical data exist with regard to the main research question of this study, i.e. (1) the frequency of requesting and receiving EAS amongst people with (also) a psychiatric disorder, dementia or an accumulation of health problems; (2) the reasons for physicians to grant or refuse a request; and (3) the differences in characteristics, including the presence of psychiatric disorders, dementia, and accumulation of health problems, between patients who did and did not request EAS and between patients whose request was or was not granted.

In general:
- The aim of the study is well-defined, and the research questions are clear.
- The methods are appropriate and well described (see additional comments below).
- The data are sound and the statistical methods used are appropriate.
- The response rate of the physicians was high with 78%.
- The manuscript adheres to the relevant standards for reporting and data deposition.
- The discussion and conclusions are balanced and adequately supported by the data (see additional comments below).
- Overall, limitations of the work are clearly stated (see additional comment below).
- The authors clearly acknowledge any work upon which they are building.
- The title and abstract do accurately convey what has been found.
- The writing is good (see additional comment on language below).

I suggest to accept this article for publication in the BMC Medicine after minor revision. Major revision is not necessary.

Suggested points minor revisions:

1) I understand that details with regard to the study design have been described in the mentioned NEJM article (2017). Nevertheless, I find it important that the authors also report the following factors in the present article:
a) The authors should precise what is meant by patients with "accumulation of health problems" and what criteria they have provided to the physicians to classify patients in this category.

b) In drawing the sample, for which factors has been stratified? Please describe this in the section on "Design and population".

c) Is there any particular certain reason why the sample is restricted to the 1st of August to the 1st of December 2015?

2) Probably, it wouldn't be necessary to point on the following. The authors should make sure that they correctly name the type of logistic regression used: is it multivariate or multivariable regression? These are often used interchangeably in the literature. However, these terms actually represent two very distinct types of statistical analyses; see e.g., https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3518362/

3) In the results section the authors mention that "Of the people with dementia, 25.3% died of a 139 neurological disorder". However, the ICD-11 will move the syndromal diagnosis of dementia from the chapter on mental and behavioral disorders to the chapter on diseases of the nervous systems. Thus, in fact dementia is itself a neurological disorder. Do the authors mean by "Of the people with dementia, 25.3% died of a neurological disorder" that these 25.3% have died from another than a neurodegenerative disorder? They should precise this and provide an example.

4) One major limitation of the study is that it has not been differentiated between mental disorders. However, exactly that would have been very interesting: Is the majority of patients requesting and granting access to EAS suffering from major depression, schizophrenia, bipolar disorder, or else? Are there different patterns dependent on the mental disorder of requesting but not been granted EAS? The authors should state this in the limitations section and also mention the need of future studies.

5) There are only minor language issues with regard to interpunction (commas), e.g. at the beginning of the following sentences:
   - "In the past decade the percentage of all deceased patients in the Netherlands who requested EAS prior to their death increased, from 5.2% in 2005, to 6.7% in 2011, and to 8.4% in 2015."
   - "In univariable analyses age, cause of death, the presence of a psychiatric disorder, and an accumulation of health problems, attending physician, and the involvement of a palliative care consultant/team, and pastor showed associations (p<0.10) with receiving EAS."

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

Yes

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

Not applicable
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?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I recommend additional statistical review

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