PEER REVIEW HISTORY

ARTICLE DETAILS

TITLE (PROVISIONAL)	Deficiencies in healthcare prior to suicide and actions to deal with them: A retrospective study of investigations after suicide in Swedish healthcare
AUTHORS	Roos af Hjelmsäter, Elin; Ros, Axel; Gäre, Boel Andersson; Westrin, Åsa

VERSION 1 – REVIEW

REVIEWER	Tine Grimholt Oslo University Hospital and Oslo Metropolitan University
REVIEW RETURNED	08-Aug-2019

GENERAL COMMENTS	Thank you for inviting me to review this paper. I believe that it has potential and is to my knowledge novel and describes deficiencies in the treatment provided before suicide is an important contribution to the field. However, there were a few things I didn't understand or that I think need to be clarified further. Please find my comments below: Abstract Page 2, line 7: "Many suicide deaths occur among individuals who have ongoing ..." I think the term many is to general, could this amount be more specific? Background Page 3, line 42: "The report to the authority is to be preceded by an investigation of the healthcare services provided to the patient before the adverse event, conducted by the healthcare provider" Could you please clarify, is this- or could this in some cases be the the same health care provider/ person that made any mistakes during the treatment? Are all suicides in Sweden registered and then screened for whether the individual was in ongoing or recent treatment? And also, in what parts of the health care are the reports sent from, I understand that specialist healthcare like hospitals and district psychiatric out patient clinics are involved, but does this also include patients treated in primary health care? I think that this part of the background section preferably might improve by being sharpened and explained for the reader. Since this is the first paper reporting on Swedish figures, the background chapter would improve by adding some international research into the context, or if non existing, maybe address that.

	Methods Page 4, line 10: insert the N= in the sentence: "All suicide cases (N=x) reported to the HaSCI in 2015 were included." Results Table 2) Are the outpatient healthcare services during the last three months psychiatric out patient clinics? (line 46-49) Are there differences between the healthcare provider last in contact with the patient in terms of out patient or inpatient stays and also the length of time of death after discharge? Line 51: The major diagnoses are informative and interesting, however the description and categorization of diagnoses and in cases with comorbidity should be addressed in the methods section. Page 8, line 5: Could the term "sleeping pills" be more specific? e.g. benzodiazepines? Discussion Overall, I suggest that the discussion also reflect and consider that there are not causality between the retrospective identified deficiencies and the completed suicide. E.g. the missing suicide risk assessment were not the direct cause of the suicide. The prospective perspective that the clinicians actually have in the treatment setting should be addressed in order to not give the impression that if you only did this or that, the patient would not have ended his/ her life. In page 11, line 41: the sentence "…provided before suicide that were considered to have contributed to death" is to my opinion misleading because it is not possible to claim that the identified deficiencies actually contributed to death... is it? References Page 14, line 45, the Beskow et al 1987, reference is more than 30 years old, are there any recent literature available?

REVIEWER	Kirstie McClatchey University of Edinburgh
REVIEW RETURNED	13-Aug-2019

GENERAL COMMENTS	The manuscript entitled 'A retrospective study of investigations after suicide in Swedish healthcare' examines reports to the regulatory authority in Sweden after investigations of the healthcare provided to those who died by suicide in 2015. The study aimed to identify deficiencies in healthcare; the actions proposed to deal with deficiencies; the level of the organisational hierarchy in which deficiencies and actions were situated; and outcomes of the supervisory authority's decisions. The authors found that in over half of the cases, healthcare providers reported deficiencies that contributed to suicide; actions to prevent new suicides were proposed in 80% of cases; deficiencies and actions were mostly situated at the micro organisational level; and in 65% of cases, the supervisory authority approved the investigation without further requirements. The paper meets its aims and highlights its strengths and limitations. Overall, the paper explores an important topic area, and is carefully written and well described. Below are a few minor comments and suggestions.

	In the Limitations and strengths section (page 14, lines 10-12), the categorisation of data conducted by one researcher to achieve consistency is described as a strength. Could the authors possibly consider that the use of an independent researcher to cross-check the categorisations may have been of benefit. Page 14, line 15, where describing the suicides as being representative of patients in contact with healthcare within four weeks before death, the word 'committed' has been used. Could this be replaced with e.g. 'completed', or could the sentence be reworded to describe the patients as having died by suicide, in order to follow the World Health Organization reporting guidance. In the concluding section (page 14), along with the discussion around future research, a brief section of how this study can inform practice would be helpful, perhaps reiterating some of the discussion points e.g. improving the ability of healthcare organisations to learn from and recall incidents and investigation outcomes. Typo (page 13, line 45), should read as 'illustrates'.

VERSION 1 – AUTHOR RESPONSE

Reviewer 1

I believe that it has potential and is to my knowledge novel and describes deficiencies in the treatment provided before suicide is an important contribution to the field.
However, there were a few things I didn't understand or that I think need to be clarified further.
Please find my comments below:
Abstract
Page 2, line 7: "Many suicide deaths occur among individuals who have ongoing ..."
I think the term many is to general, could this amount be more specific?
Response: I agree "many" is a general term. I choose it because the studies that I refer to have found substantial different numbers, in different countries and in different kinds of healthcare, why I found it far too complex to be more specific in an abstract. In my paper, I have now revised the headlines of the abstract to be in accordance with BMJ´s guidelines for authors.

Background
Page 3, line 42: "The report to the authority is to be preceded by an investigation of the healthcare services provided to the patient before the adverse event, conducted by the healthcare provider"
Could you please clarify, is this- or could this in some cases be the same health care provider/ person that made any mistakes during the treatment?
Response: Your conclusion is right and is according to Swedish legislation which states that the health care providing organization shall investigate and report severe patient harm. Theoretically, it can be the same person that treated the patient before suicide that makes the investigation. In reality this concerns a very small number of investigations. In this study the treating doctor reported the suicide in 6 cases, all single private caregivers, with no other opportunities, when the obligation to report is concerned to the provider.

Are all suicides in Sweden registered and then screened for whether the individual was in ongoing or recent treatment?
Response: In Sweden all deaths are registered in a national data base (Statistic on causes of death) to which the causes of death are reported by the physician investigating the deceased, including suicide. Further analyses of ongoing or recent treatment etc. are not made systematically, not beside specific research. The physician that states the death examines the deceased and usually takes part

of records etc. and informs ongoing healthcare contacts. This study was performed almost a decade after the obligation to report suicides to the supervisory authority was implemented. Most providers would have been familiar with the procedure to report the suicides that come to the provider´s knowledge. Therefore, the cases in the study are expected to match the actual numbers to a good extent.

And also, in what parts of the health care are the reports sent from, I understand that specialist healthcare like hospitals and district psychiatric out patient clinics are involved, but does this also include patients treated in primary health care?
Response: All areas of healthcare, including primary care, were by legislation required to report suicide and all these reports were included in this study. The distribution of psychiatric somatic and primary caregivers is shown in table 2.

I think that this part of the background section preferably might improve by being sharpened and explained for the reader.

Since this is the first paper reporting on Swedish figures, the background chapter would improve by adding some international research into the context, or if non existing, maybe address that.
Response: Thank you for this clarification. To our knowledge, there are neither no aggregated international analyses nor any analyses of this kind published. I have added this to the background section.

In accordance to the comments above, I have made some marked revisions in the paper.

Methods
Page 4, line 10: insert the N= in the sentence: "All suicide cases (N=x) reported to the HaSCI in 2015 were included."

Response: Thank you, I have revised this.

Results

Table 2) Are the outpatient healthcare services during the last three months psychiatric out patient clinics? (line 46-49)
Response: This includes all kinds of outpatient care, primary and secondary, psychiatric and somatic. I have added this clarification to the headline in table 2.

Are there differences between the healthcare provider last in contact with the patient in terms of out patient or inpatient stays and also the length of time of death after discharge?
Response: The number of suicides with the last contact with somatic care was 33, psychiatric care 290, so statistical analyses are a little precarious. 50% of the cases reported by somatic care and 40% of the cases reported by psychiatric care had received inpatient care during the three last months before suicide. There is a wider range in time after discharge from psychiatric inpatient care, but I find the numbers are too small to make any statistical conclusions from.

Line 51:
The major diagnoses are informative and interesting, however the description and categorization of diagnoses and in cases with comorbidity should be addressed in the methods section.
Response: Good point. Only major diagnoses documented and coded in accordance with the ICD-10 coding system in the records are reported in this paper. I have added this clarification to the method section.
41% of the cases had at least one further diagnose documented in the record, beside the major diagnose.

Page 8, line 5: Could the term "sleeping pills" be more specific? e.g. benzodiazepines?
Response: I choose the term hypnotic drugs instead, thus including zopiclone, zolpidem, nitrazepam, propriomazine and melatonin.

Discussion

Overall, I suggest that the discussion also reflect and consider that there are not causality between the retrospective identified deficiencies and the completed suicide. E.g. the missing suicide risk assessment were not the direct cause of the suicide.
The prospective perspective that the clinicians actually have in the treatment setting should be addressed in order to not give the impression that if you only did this or that, the patient would not have ended his/ her life.

In page 11, line 41: the sentence "…provided before suicide that were considered to have contributed to death" is to my opinion misleading because it is not possible to claim that the identified deficiencies actually contributed to death... is it?
Response: I agree, these are good points. The reported deficiencies in healthcare in this study were in hindsight considered by the providers to be of importance to the completed suicide, and should not be read as causality, as suicide usually is the final outcome of a process over time involving interaction of several factors. I have made some revisions in the discussion section to clarify this and the correlations to Swedish law and RCA method.

References
Page 14, line 45, the Beskow et al 1987, reference is more than 30 years old, are there any recent literature available?
Response: Yes, this is an old reference. We have searched for references more up to date, but still regard this one to be of relevance to this paper.

Reviewer: 2
Reviewer Name: Kirstie McClatchey
Institution and Country: University of Edinburgh
Please state any competing interests or state 'None declared': None declared.

Please leave your comments for the authors below
The manuscript entitled 'A retrospective study of investigations after suicide in Swedish healthcare' examines reports to the regulatory authority in Sweden after investigations of the healthcare provided to those who died by suicide in 2015. The study aimed to identify deficiencies in healthcare; the actions proposed to deal with deficiencies; the level of the organisational hierarchy in which deficiencies and actions were situated; and outcomes of the supervisory authority's decisions. The authors found that in over half of the cases, healthcare providers reported deficiencies that contributed to suicide; actions to prevent new suicides were proposed in 80% of cases; deficiencies and actions were mostly situated at the micro organisational level; and in 65% of cases, the supervisory authority approved the investigation without further requirements. The paper meets its aims and highlights its strengths and limitations. Overall, the paper explores an important topic area, and is carefully written and well described. Below are a few minor comments and suggestions.

In the Limitations and strengths section (page 14, lines 10-12), the categorisation of data conducted by one researcher to achieve consistency is described as a strength. Could the authors possibly consider that the use of an independent researcher to cross-check the categorisations may have been of benefit.
Response: Yes, we have considered this. In this study, all coding was made by one and the same researcher (ERaH), psychiatrist and Chief Medical Officer. In Sweden a Chief Medical Officer is responsible for overseeing patient safety work and judge the quality of patient harm investigations within a health care providing organization. To assess the reliability of the coding scheme, a random sample of 2% (n=8) of the investigations was independently reviewed by one of the authors (AR) who is an experienced Chief Medical Officer, and the results were compared with the coding of the first researcher. The categorizations were totally uniform in 5/8 cases. In two cases, the first researcher had listed one more non-immediate action, categorization equal. In one case the first researcher had coded one more deficiency, categorization equal. Coding of the organizational levels was consistent in all cases. To assess the validity of the first researcher´s coding over time, ten cases were re-coded by the researcher some months after the first coding. Coding fell out consistent.

We judged the consistency in the coding in this study to be adequate, and still find this as a strength.

Page 14, line 15, where describing the suicides as being representative of patients in contact with healthcare within four weeks before death, the word ‘committed’ has been used. Could this be replaced with e.g. ‘completed’, or could the sentence be reworded to describe the patients as having died by suicide, in order to follow the World Health Organization reporting guidance.
Response: Thank you for this point. I have revised this.

In the concluding section (page 14), along with the discussion around future research, a brief section of how this study can inform practice would be helpful, perhaps reiterating some of the discussion points e.g. improving the ability of healthcare organisations to learn from and recall incidents and investigation outcomes.
Response: Thank you, this is a very good point. In my coding I have registered how the learning from the investigations was described in the reports. In only 4% of the reports, sharing the lessons from the investigations outside the own department were planned. I added this important finding to the paper in the methods, results, discussion and conclusion sections.

Typo (page 13, line 45), should read as ‘illustrates’.
Response: Thank you, you´re right. I have revised.

VERSION 2 – REVIEW

REVIEWER	Tine K. Grimholt Oslo Metropolitan University
REVIEW RETURNED	23-Sep-2019

GENERAL COMMENTS	I think that the manuscript has been improved and that the points from the first review have been addressed and explained thoroughly in the second version. I have no further comments. I want to underline that I do not have sufficient competence to comment on the statistical procedures. Thank you to the authours for a very important and interesting contribution to the academic field of Suicidology. I think many researchers and clinicians will find this important.