

PEER REVIEW HISTORY

BMJ Open publishes all reviews undertaken for accepted manuscripts. Reviewers are asked to complete a checklist review form (<http://bmjopen.bmj.com/site/about/resources/checklist.pdf>) and are provided with free text boxes to elaborate on their assessment. These free text comments are reproduced below.

ARTICLE DETAILS

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| TITLE (PROVISIONAL) | A Cohort Study to Explore the Association between the COVID-19 Pandemic Lockdown and Admissions for Violence in North East and North Cumbria |
| AUTHORS | Brown, Andrea; Collingwood, Paul; Newton, Julia |

VERSION 1 – REVIEW

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| REVIEWER | Kari Sampsel University of Ottawa, Emergency Medicine |
| REVIEW RETURNED | 17-May-2021 |

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| GENERAL COMMENTS | <p>Abstract (review checklist point #2): The main outcome measures section needs some revision for clarity - these are more bullet points than sentences and it is difficult to see if these were compared against each other or used as a norm for the violence counts.</p> <p>Methods (review checklist point #4): Why was alcohol-related admissions used specifically? Were other substances included as well? There is significant overlap between alcohol use and violence so this may not be a truly independent variable. Also - it would be helpful to describe the ICD10 codes X85 to Y09. It will give description to how broad or narrow their definition of violence is.</p> <p>Results (review checklist point #6): When describing the increase in attendance counts in the summer/September 2020 - it would be useful to have the end of the lockdown noted as a data point in the text and on the figures to give this context.</p> <p>Admissions related to violence - needs a broad descriptor of what kinds of violence are included here to give context and to support the discussion/conclusions better.</p> <p>The end of lockdown date needs to be noted in the figures as well so that the reader can easily know when that transition is made and can interpret the data.</p> <p>Discussion (reviewer point #11): The author's hypothesis that pre-lockdown visits were unnecessary and that is why the cases have not returned to the same levels is not supported by their introduction/results. How did the environment post-lockdown make these unnecessary visits less likely to happen? And why is this different than what is seen with alcohol-related and violence presentations? I would suggest removing this entirely unless there is evidence to support this claim.</p> <p>The authors also do not speculate why alcohol-related and violence rates jumped back up post-lockdown, even though overall admissions are lower. This is the key crux of the study and there are no hypotheses as to why this was - the authors reported their findings only without a greater discussion of why.</p> <p>The rest of the discussion centres around how violence impacts</p> |
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| | <p>communities and how these trusts need to implement strategies to mitigate their effects. This is more a baseline observation - and does not address/include the main objective of the study - which is the impact of COVID. I suggest that as an extension of the points above - the discussion needs to be re-worked to discuss the author's results in the context of their stated question, not just a discussion of the socio-economic impact of violence in general.</p> <p>In the abstract and in the final paragraph of the discussion the authors suggest that the "NENC needs to address these issues in order to level up". I have no idea what "level up" means in this context. Clearer explanation is needed.</p> <p>Limitations (reviewer point #12): Study limitations are not addressed well - what does "detail regarding the types of issue that precipitated admission" mean? The authors need to discuss why this is a limitation.</p> <p>Overall writing standard (reviewer point #15): There are a number of instances within the manuscript identified above where the language is not clear and/or there are not cogent sentences. These will need review.</p> |
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| REVIEWER | Gene Feder University of Bristol, Community based medicine |
| REVIEW RETURNED | 01-Jun-2021 |

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| GENERAL COMMENTS | <p>This well-written manuscript reports the pattern of total ED attendances and admissions for violence-related injuries using Hospital Episode Statistics data in the northeast of England in the 3 years prior to and the X months during the 1st UK-wide lockdown in response to the COVID-19 pandemic. The pattern is one of reduced admissions, an immediate increase post-lockdown, followed by a rate lower than pre-lockdown. The reminder that admission rates for violence</p> <p>The authors do not discuss any limitations of their analysis: the inconsistent coding of violence in HES data, no analysis of the interaction of age, gender and SES on the pattern of admissions for violence related injuries, the absence of ethnicity data, no indication of the precision of then admission measurements over time (e.g reporting standard errors on display items), and the absence of ED violence-related attendance</p> <p>Even with a statement of limitations (and possibly mitigating some of them analytically) improvements, the manuscript would further benefit by inclusion of data from the 2d lockdown and data that are no longer provisional (although the differences between provisional and final HES reporting are marginal).</p> <p>Finally, I think references should include other studies of ED attendance during the pandemic, including some that focus on violence (e.g. https://www.cardiff.ac.uk/news/view/2502703-study-reveals-impact-of-lockdown-on-violence-in-welsh-capital) even if not yet in the peer-reviewed domain</p> |
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VERSION 1 – AUTHOR RESPONSE

Reviewer: 1

Dr. Kari Sampsel, University of Ottawa, Ottawa Hospital Research Institute

Comments to the Author:

Abstract (review checklist point #2): The main outcome measures section needs some revision for clarity - these are more bullet points than sentences and it is difficult to see if these were compared against each other or used as a norm for the violence counts.

We apologise for the confusion and have rewritten this section as suggested by the reviewed.

Methods (review checklist point #4): Why was alcohol-related admissions used specifically? Were other substances included as well? There is significant overlap between alcohol use and violence so this may not be a truly independent variable. Also - it would be helpful to describe the ICD10 codes X85 to Y09. It will give description to how broad or narrow their definition of violence is.

Background to this work – a rapid Health Inequalities Impact Assessment for the North East with regard to the unintended consequences of the COVID-19 response resulted in a suite of reports produced by NEQOS for the AHSN NENC during the period September '20 to Jan '21. Metrics to support this work were selected and prioritised in terms of perceived relevance to COVID-19 but also in terms of data availability, update frequency and the ability to analyse by factors such as deprivation.

Alcohol-related admissions were included in the reports above as alcohol consumption is a contributing factor to hospital admissions and deaths from a diverse range of conditions. This measure is used to understand the impact of alcohol on the health of a population. Admissions can be due to drinking over a relatively short period (acute intoxication or poisoning) or for conditions that develop more gradually such as damage to the liver or brain.

Alcohol use poses special problems in relation to the COVID-19 pandemic; it is a significant risk factor for depression and suicide (potentially more prevalent during the time of enforced social isolation) and alcohol use also increases the risk that interpersonal conflicts will result in violent behaviour and domestic violence.

There are two definitions for alcohol admissions used in LAPE (Local Alcohol Profiles for England - Hospital admissions due to alcohol - PHE) and the narrow definition was used in this report (an estimation of the number of hospital admissions which are primarily due to alcohol consumption, therefore providing the best indication of trends in alcohol-related hospital admissions).

As recommended we have added the following as a new table to the manuscript

ICD10 codes X85-Y09 were based on the Fingertips indicator for emergency admissions for violence (Fingertips indicator reference 11201) but for a more recent time period than is presented via the Fingertips tool.

Codes can be broken down as follows (based on <https://icd.who.int/browse10/2016/en#/X85-Y09>)

X85 – Assault by drugs, medicaments and biological substances

X86 – Assault by corrosive substances

X87 – Assault by pesticides

X88 – Assault by gases and vapours

X89 – Assault by other specified chemicals and noxious substances

X90 – Assault by unspecified chemical or noxious substance

X91 – Assault by hanging, strangulation and suffocation

X92 – Assault by drowning and submersion

X93 – Assault by handgun discharge

X94 – Assault by rifle, shotgun and larger firearm discharge

X95 – Assault by other and unspecified firearm discharge

- X96 – Assault by explosive material
- X97 – Assault by smoke, fire and flames
- X98 – Assault by steam, hot vapours and hot objects
- X99 – Assault by sharp object
- Y00 – Assault by blunt object
- Y01 – Assault by pushing from high place
- Y02 – Assault by pushing or placing victim before moving object
- Y03 – Assault by crashing of motor vehicle
- Y04 – Assault by bodily force
- Y05 – Sexual assault by bodily force
- Y06 – Neglect and abandonment
- Y07 – Other maltreatment
- Y08 – Assault by other specified means
- Y09 – Assault by unspecified means

Other substances

This work to date has not included hospital admissions due to substance misuse but this would be possible based on the standard definition for the Fingertips indicator for hospital admissions due to substance misuse (15-24 years) which we would refine to exclude the age limits. The definition for this indicator is available here:

<https://fingertips.phe.org.uk/search/substance%20misuse#page/6/gid/1/pat/6/par/E12000001/ati/102/are/E06000047/iid/90808/age/156/sex/4/cid/4/tbm/1/page-options/car-do-0>

Overlap in the indicator definitions for admissions due to alcohol and for violence

With regard to the extent of the overlap between the indicator definitions for alcohol-related admissions to hospital and emergency admissions for violence, we accept that there is some overlap in the definitions as ICD10 codes X85-Y09 do appear in Appendix 1 containing the alcohol-attributable fractions used to calculate alcohol-specific and alcohol-related hospital admission and mortality figures (LAPE user guide https://fingertips.phe.org.uk/profile/local-alcohol-profiles/supporting-information/supporting_docsLAPE2).

The codes can be found in within the partially attributable conditions – acute conditions section of the table, however the attributable fractions are generally relatively small. At this point it is not possible to calculate the extent of this overlap due to the complexity of the data queries.

Results (review checklist point #6): When describing the increase in attendance counts in the summer/September 2020 - it would be useful to have the end of the lockdown noted as a data point in the text and on the figures to give this context. JN TO ADD

Admissions related to violence - needs a broad descriptor of what kinds of violence are included here to give context and to support the discussion/conclusions better.

The list of ICD10 codes included in the admissions relating to violence indicator (Fingertips indicator reference 11201) are provided above and now included as Table 1.

With regard to lockdown dates, we have identified these from the following source:

<https://www.instituteforgovernment.org.uk/sites/default/files/timeline-lockdown-web.pdf>:

First lockdown: 23rd March 2020 – 10th May 2020

Various local lockdowns during the summer, rule of 6 added in September, tier system in October

Second national lockdown: 5th November – 2nd December (back to tiers)

Third national lockdown: 6th January – eased in stages through March onwards.

We accept that inclusion of these would assist the reader in interpretation of the figures, however the second lockdown was tier-based and the third was eased gradually, which could be included in the

figures, based on the key utilised in the above link, or in the article text if the alternative was considered too complex. We have however added the timings of the first national lockdown, the focus of this paper, to the figures as requested.

The end of lockdown date needs to be noted in the figures as well so that the reader can easily know when that transition is made and can interpret the data.

See above

Discussion (reviewer point #11): The author's hypothesis that pre-lockdown visits were unnecessary and that is why the cases have not returned to the same levels is not supported by their introduction/results. How did the environment post-lockdown make these unnecessary visits less likely to happen? And why is this different than what is seen with alcohol-related and violence presentations? I would suggest removing this entirely unless there is evidence to support this claim.

We thank the reviewer and have removed as suggested.

The authors also do not speculate why alcohol-related and violence rates jumped back up post-lockdown, even though overall admissions are lower. This is the key crux of the study and there are no hypotheses as to why this was - the authors reported their findings only without a greater discussion of why.

We have added further discussion as recommended.

The rest of the discussion centres around how violence impacts communities and how these trusts need to implement strategies to mitigate their effects. This is more a baseline observation - and does not address/include the main objective of the study - which is the impact of COVID. I suggest that as an extension of the points above - the discussion needs to be re-worked to discuss the author's results in the context of their stated question, not just a discussion of the socio-economic impact of violence in general.

We have extended as recommended.

In the abstract and in the final paragraph of the discussion the authors suggest that the "NENC needs to address these issues in order to level up". I have no idea what "level up" means in this context. Clearer explanation is needed.

We apologise and have added clearer explanation as requested.

Limitations (reviewer point #12): Study limitations are not addressed well - what does "detail regarding the types of issue that precipitated admission" mean? The authors need to discuss why this is a limitation.

We have added more detail to the limitations as suggested.

Overall writing standard (reviewer point #15): There are a number of instances within the manuscript identified above where the language is not clear and/or there are not cogent sentences. These will need review.

We apologise and have reviewed as requested and amended where necessary.

Reviewer: 2

Prof. Gene Feder, University of Bristol

Comments to the Author:

This well-written manuscript reports the pattern of total ED attendances and admissions for violence-related injuries using Hospital Episode Statistics data in the northeast of England in the 3 years prior to and the X months during the 1st UK-wide lockdown in response to the COVID-19 pandemic. The pattern is one of reduced admissions, an immediate increase post-lockdown, followed by a rate lower than pre-lockdown. The reminder that admission rates for violence

The authors do not discuss any limitations of their analysis: the inconsistent coding of violence in HES data, no analysis of the interaction of age, gender and SES on the pattern of admissions for violence related injuries, the absence of ethnicity data, no indication of the precision of then admission measurements over time (e.g reporting standard errors on display items), and the absence of ED violence-related attendance

We thank the reviewer for this very helpful comment and have added more detail to the limitations section.

Even with a statement of limitations (and possibly mitigating some of them analytically) improvements, the manuscript would further benefit by inclusion of data from the 2d lockdown and data that are no longer provisional (although the differences between provisional and final HES reporting are marginal).

At the time of analysis, data was available to the end of September 2020. It is possible to rerun the HES query scripts to obtain data to the end of March 2021 (however this would still remain provisional) and update the trend charts (considerably more work is required to update all of the bar charts to also include 20/21 financial year data).

We note that the deadline for response to the BMJ is 25th July. To obtain more recent data would require an extension to this date, to approximately w/c 9th August (to allow for delays by NHS Digital and enable time for analysis and QA), which in turn may require further changes to the article text.

Finally, I think references should include other studies of ED attendance during the pandemic, including some that focus on violence (e.g. <https://www.cardiff.ac.uk/news/view/2502703-study-reveals-impact-of-lockdown-on-violence-in-welsh-capital>) even if not yet in the peer-reviewed domain

We thank the reviewer and have added 3 other studies as references as suggested.

VERSION 2 – REVIEW

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| REVIEWER | Kari Sampsel University of Ottawa, Emergency Medicine |
| REVIEW RETURNED | 14-Aug-2021 |
| GENERAL COMMENTS | Excellent article on an under-recognized issue within healthcare. The authors did a good job explaining that this may have been under-recognized prior to pandemic lockdowns or may have been exacerbated by them. Nice population level information. Conclusions are not over-reaching given the methods and limitations discussed. |
| REVIEWER | Gene Feder University of Bristol, Community based medicine |

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| REVIEW RETURNED | 20-Aug-2021 |
| GENERAL COMMENTS | <p>The manuscript is substantially improved by articulating the limitations of the study and taking on board the reporting & interpretative concerns of my fellow reviewer.</p> <p>Nevertheless, although it does require additional work (apologies for that), I recommend updating the analysis with ED data from the 2d lockdown. True, this wasn't uniformly applied nationally, but given that the paper reports a regional analysis, I think it should be feasible and would strengthen interpretation of the data from the first lockdown.</p> |

VERSION 2 – AUTHOR RESPONSE

Reviewer: 1

Dr. Kari Sampsel, University of Ottawa, Ottawa Hospital Research Institute Comments to the Author: Excellent article on an under-recognized issue within healthcare. The authors did a good job explaining that this may have been under-recognized prior to pandemic lockdowns or may have been exacerbated by them. Nice population level information. Conclusions are not over-reaching given the methods and limitations discussed. WE THANK THE REVIEWER FOR THEIR SUPPORT

Reviewer: 2

Prof. Gene Feder, University of Bristol

Comments to the Author:

The manuscript is substantially improved by articulating the limitations of the study and taking on board the reporting & interpretative concerns of my fellow reviewer.

Nevertheless, although it does require additional work (apologies for that), I recommend updating the analysis with ED data from the 2d lockdown. True, this wasn't uniformly applied nationally, but given that the paper reports a regional analysis, I think it should be feasible and would strengthen interpretation of the data from the first lockdown. WE APPRECIATE THE REVIEWERS POINT AND AGREE WITH THEM. HOWEVER,AS DISCUSSED BY EMAIL, THE AVAILABILITY OF THIS DATA MAKES THE TIMESCALE FOR SUBMISSION NOT POSSIBLE AND WAITING UNTIL IT IS AVAILABLE WOULD DETRACT FROM THE TIMELINESS OF THE DATA