

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

TITLE (PROVISIONAL)	UK Veterans' mental health and wellbeing before and during the COVID-19 pandemic: A longitudinal cohort study
AUTHORS	Sharp, Marie-Louise; Serfioti, Danai; Jones, Margaret; Burdett, Howard; Pernet, David; Hull, Lisa; Murphy, Dominic; Wessely, Simon; Fear, Nicola

VERSION 1 – REVIEW

REVIEWER	Lindert, J University of Emden, Public Health and Social Work
REVIEW RETURNED	17-Mar-2021

GENERAL COMMENTS	<p>The study is well written and very interesting. It adds much needed knowledge. However, I am wondering about the sentences and statements on families. The study investigated veterans – not families. Maybe this could be made clearer? To understand better the impact of the pandemics on families would be very helpful, however, I cannot see that this is possible with the data analyses in this study. Additionally, I am wondering about gender – I could not see that gender differences were mentioned / investigated. Maybe authors could explain how gender is treated in this study?</p> <p>Thank you for this study, I am looking forward to reviewing the next version.</p>
-------------------------	--

REVIEWER	Godier-McBard, Lauren Anglia Ruskin University, Veterans and Families Institute for Military Social Research
REVIEW RETURNED	25-Mar-2021

GENERAL COMMENTS	<p>This is a well written and concise paper reporting on an important issue: the well-being of UK ex-service personnel during the pandemic. I have no major concerns and most of my comments below reflect minor issues and clarity. However, there are a few limitations that I think need to be discussed, which I have outlined in the discussion section below.</p> <p>Introduction Page 4 line 20 – ‘Understanding society’ project is mentioned but it isn’t clear what this is or who conducted it. Where this goes on to mention increased GHQ scores, it’s not clear when this 8.1% increase occurred – i.e., I assume this was over a certain portion of the pandemic? Page 4 line 32 – bracket missing after PTSD. Page 4 lines 39-42 – This sentence reads as though all veterans experience poor re-integration. Perhaps a small change of wording needed here to make it clear that loneliness and social isolation may</p>
-------------------------	---

	<p>be impacted by poor re-integration experienced by some. Page 4 lines 48-49 – is it worth mentioning here that a lot of ex-service personnel may also be on the front line/key workers in the pandemic? Page 4 line 56 – is CHECK an acronym? If so, can this be spelled out here. Page 5 – lines 3-4 – I think something needs to be added here to explain why this would be important to these stakeholders, i.e., to provide support etc.</p> <p>Methods: Page 5 lines 38-39 – was this self reported belief of having covid, or self report of a positive test? Or either? Page 5 lines 46-50 – I wasn't clear on whether the 'financial difficulties' variable included having lost their own job or just someone else in the household losing their job? Or was job loss measured separately from these other financial difficulties? The two are obviously very likely to be related.</p> <p>Results: Page 6 lines 47-48 – If responders were less likely to report alcohol misuse, might this impact on the results related to alcohol use? I'm just wondering whether the results may have been different in those who were more likely to report alcohol misuse and didn't respond to this survey? Table 1 – wondering if 'O-level' should be 'GCSE'? What does 'ex-relationship' mean under relationship status?</p> <p>Discussion: Page 12 line 41 – UKHLS needs spelling out. Page 13 line 52 – could 'meaning in life' be defined here? This would help with interpreting the sentence. Good discussion of findings and potential interpretation/implications provided, including discussion of the potential for the time period of data collection (i.e. during lessened restrictions) to explain some of the results. However, I think there are some limitations in the sample that are not mentioned - including a low level of other ranks – is it likely that this group may be particularly vulnerable to financial difficulties etc that may not be fully captured in this sample? As per my comment above, responders were also less likely to report alcohol misuse, so I wonder what the impact of this might have been on the alcohol-related results. There were also low levels of veterans in the sample who had recently left service/transitioned – I imagine those who have recently transitioned might be particularly vulnerable to difficulties during the pandemic.</p>
--	--

VERSION 1 – AUTHOR RESPONSE

Reviewer: 1

Dr. J Lindert, University of Emden, Brandeis University

Comments to the Author:

The study is well written and very interesting. It adds much needed knowledge. However, I am wondering about the sentences and statements on families. The study investigated veterans – not families. Maybe this could be made clearer? To understand better the impact of the pandemics on families would be very helpful, however, I cannot see that this is possible with the data analyses in this study.

The study was focused on veterans but did ask about family relationships, children's schooling, caring responsibilities and hence captured an element of the impact of the pandemic on veterans' families. However, the study was not able to capture data directly from veterans' families. We have added a sentence detailed below in the limitations section to acknowledge this and clarify:

***'Whilst the study captures data from veterans regarding their family experiences, such as relationship, childcare and caring pressures, the study was not able to collect data from veterans' partners/spouses and children themselves.'* (Paragraph 9 of Discussion)**

Additionally, I am wondering about gender – I could not see that gender differences were mentioned / investigated. Maybe authors could explain how gender is treated in this study?

We did not report separate analyses for females and males but in the fully adjusted models we included sex as a covariate. The number of females in the sample was 179 (11%) which was insufficient statistically to robustly examine associations between CMD, alcohol use or loneliness and the COVID-19 experiences and stressors in females only. Examining change in CMD and alcohol use before and during the pandemic, we found that the level of CMD in females was stable and we found similar statistically significant reductions in all measures of alcohol use in females as in the sample as a whole. To identify this, we have added a sentence detailing this in the results section and noted this statistical issue in the limitations section.

***'In further analysis (available upon request) women veterans in the sample reported similar trends as male veterans mirroring the stability in CMD levels and statistically significant reductions in alcohol use.'* (Paragraph 2 of Results)**

***'Whilst we were able to identify similar trends in women veterans for CMD and drinking compared to male veterans in this sample, the number of women in the sample was insufficient to robustly examine associations of COVID-19 stressors and outcomes.'* (Paragraph 9 of Discussion)**

Thank you for this study, I am looking forward to reviewing the next version.

Reviewer: 2

Dr. Lauren Godier-McBard, Anglia Ruskin University

Comments to the Author:

This is a well written and concise paper reporting on an important issue: the well-being of UK ex-service personnel during the pandemic. I have no major concerns and most of my comments below reflect minor issues and clarity. However, there are a few limitations that I think need to be discussed, which I have outlined in the discussion section below.

Introduction

Page 4 line 20 – 'Understanding society' project is mentioned but it isn't clear what this is or who conducted it. Where this goes on to mention increased GHQ scores, it's not clear when this 8.1% increase occurred – i.e., I assume this was over a certain portion of the pandemic?

We have clarified these issues and corrected the statistic from the cited paper Banks, J. and X. Xu 2020:

'The analysis of longitudinal data from the UK Household Longitudinal Study (UKHLS), also known as 'Understanding Society' study indicated that mental health in the UK worsened substantially from wave 9 data collected January 2017-May 2019 with increased GHQ scores of 10.8% on average in April 2020, with worse scores in wave 9 data for individuals with pre-existing mental health difficulties [5]' (Paragraph 2 of Introduction)

Page 4 line 32 – bracket missing after PTSD.

This has been amended.

Page 4 lines 39-42 – This sentence reads as though all veterans experience poor re-integration. Perhaps a small change of wording needed here to make it clear that loneliness and social isolation may be impacted by poor re-integration experienced by some.

The sentence is amended to capture the nuance suggested:

‘Loneliness and social isolation are recognised problems for society in general, but ex-Service personnel present with unique experiences of loneliness and social isolation, which for some can be linked to poor re-integration into civilian life and the community [12, 13].’ (Paragraph 3 of Introduction)

Page 4 lines 48-49 – is it worth mentioning here that a lot of ex-service personnel may also be on the front line/key workers in the pandemic?

We examined the literature prior to Veterans-CHECK results and our own cohort data, and we did not find evidence on which to make statements about potential job roles/sectors/frontline workers status prior to measuring this during the Veterans-CHECK study.

Page 4 line 56 – is CHECK an acronym? If so, can this be spelled out here.

CHECK is not an acronym – it is a name chosen to indicate ‘checking in’ with veterans and matches names for wider King’s College London (KCL) studies named ‘NHS-CHECK’ and ‘KCL-CHECK’ which are studies of healthcare workers and KCL staff respectively during the pandemic.

Page 5 – lines 3-4 – I think something needs to be added here to explain why this would be important to these stakeholders, i.e., to provide support etc.

We have amended the sentence to read:

‘Understanding this impact will be important to the Government, Armed Forces charities, and other stakeholders to target services and support and ensure current policy initiatives are fit for purpose in the context of the pandemic.’ (Paragraph 4 of Introduction)

Methods:

Page 5 lines 38-39 – was this self reported belief of having covid, or self report of a positive test? Or either?

We have clarified in the following sentence:

‘The COVID-19 experiences and stressors section included self-report of having COVID-19 (those who indicated a positive PCR test or reported they had ‘probably’ had COVID-19 were counted as having COVID-19 for analysis purposes)’ (Paragraph 3 of Methods)

Page 5 lines 46-50 – I wasn’t clear on whether the ‘financial difficulties’ variable included having lost their own job or just someone else in the household losing their job? Or was job loss measured separately from these other financial difficulties? The two are obviously very likely to be related.

Unemployment was captured in the variable ‘Change in employment’ which was separate to the financial difficulties variable – we have clarified this in the methods section:

‘Participants were asked about employment changes since the start of the pandemic with two categories created of ‘no change/furlough’ and ‘change for worse’ which included those that reported unemployment, redundancy or reductions in salary.’ (Paragraph 3 of Methods)

Results:

Page 6 lines 47-48 – If responders were less likely to report alcohol misuse, might this impact on the

results related to alcohol use? I'm just wondering whether the results may have been different in those who were more likely to report alcohol misuse and didn't respond to this survey?

Although the relative frequencies of hazardous drinking, alcohol misuse and alcohol consumption were higher in non-responders compared to responders, the differences were fairly small compared to the change in the same measures among responders pre and during the pandemic. We think that we would still have shown a significant reduction in alcohol use during the pandemic if there had not been the differential response rate. Additionally, non-responders reporting alcohol misuse could have mirrored general population trends of male and high risk drinkers reducing their alcohol intake – therefore the reduction in drinking could be underestimated.

We have included a paragraph in the discussion on this and noted it in the limitations:

***'The study identified that responders were less likely to have reported alcohol misuse before the pandemic, however differences in reported alcohol use between responders and non-responders were minimal. Non-responders may have mirrored general population trends of male and high risk drinkers reduction efforts [28, 34, 38] and therefore also followed this reduction trend.'* (Paragraph 5 of Discussion)**

***'The study identified that responders were less likely to have reported alcohol misuse before the pandemic and therefore the direction of alcohol use of non-responders is unknown which may underestimate reductions in alcohol use during the pandemic'* (Paragraph 9 of Discussion)**

Table 1 – wondering if 'O-level' should be 'GCSE'? What does 'ex-relationship' mean under relationship status?

We have added in the table 'O-level/GCSEs' as it could be either.

We have included in the table under Ex-relationship 'separated, divorced, widowed'.

Discussion:

Page 12 line 41 – UKHLS needs spelling out.

This is now spelt out in full in the introduction.

Page 13 line 52 – could 'meaning in life' be defined here? This would help with interpreting the sentence.

We have defined this from the original paper cited and changed the paragraph to read:

***'As seen elsewhere, boredom was common in veterans during the pandemic and was strongly associated with CMD, hazardous alcohol use and loneliness [42], and has been associated with psychological distress for individuals who reported 'high meaning in life', as defined as stable sense of purpose and fulfilment in life[43]. With restrictions reintroduced in the Winter of 2020 and into 2021, the long-term effect of boredom on veterans' wellbeing, identity, purpose and fulfilment remains to be seen [3].'* (Paragraph 7 of Discussion)**

Good discussion of findings and potential interpretation/implications provided, including discussion of the potential for the time period of data collection (i.e. during lessened restrictions) to explain some of the results. However, I think there are some limitations in the sample that are not mentioned - including a low level of other ranks – is it likely that this group may be particularly vulnerable to financial difficulties etc that may not be fully captured in this sample?

Thank you we have added in a sentence to the limitations to recognise this:

***'There were only a small number of younger 'other ranks' in this sample who may be more likely to experience financial issues [51] and therefore the extent of negative associations between COVID-19 stressors and outcomes may not be fully represented'* (Paragraph 9 of Discussion)**

As per my comment above, responders were also less likely to report alcohol misuse, so I wonder what the impact of this might have been on the alcohol-related results.

Please see previous response addressing this.

There were also low levels of veterans in the sample who had recently left service/transitioned – I imagine those who have recently transitioned might be particularly vulnerable to difficulties during the pandemic.

We have included this as a limitation:

‘Only a minority of veterans in this sample were newly transitioned to civilian life and therefore this study may not capture the experiences of those who have recently left service, some of whom may be negatively impacted by this pressure point [50]’ (Paragraph 9 of Discussion)

VERSION 2 – REVIEW

REVIEWER	Lindert, J University of Emden, Public Health and Social Work
REVIEW RETURNED	09-Jun-2021

GENERAL COMMENTS	Congratulations to this interesting paper! I am wondering about recruitment and recuitment of participants. I would appreciate more details how the response rate was calculated. Additionally, I wonder whether authors have information about the theater veterans were in. Maybe this is an additional factor to be considered?
-------------------------	--

REVIEWER	Godier-McBard, Lauren Anglia Ruskin University, Veterans and Families Institute for Military Social Research
REVIEW RETURNED	24-May-2021

GENERAL COMMENTS	Thanks for the opportunity to review the revised version of this paper. I think the authors have addressed all my comments and I have nothing further to add.
-------------------------	---

VERSION 2 – AUTHOR RESPONSE

Reviewer: 1
Dr. J Lindert, University of Emden, Brandeis University

Comments to the Author:

Congratulations to this interesting paper!

Thank you for your comments and congratulations they are most welcome.

I am wondering about recruitment and recuitment of participants. I would appreciate more details how the response rate was calculated.

We have added extra information in the manuscript regarding how the response rate was calculated. This will support the information provided in the manuscript and the study protocol information cited that readers can additionally access for more details.

‘To calculate response weights, we utilised social and military demographic data collected at previous phases of the KCMHR cohort study including sex, age, education level, rank (most recent when serving), service branch, marital status, role when serving (combat/support),

cohort sample (sampled originally at phases 1, 2 or 3). We constructed a binary response variable such that 0 = did not respond and 1 = responded. We carried out univariable logistic regression to determine which of these demographic/military variables was statistically associated with response at the $p < 0.05$ level. The variables found to be associated were entered into a multivariable logistic model. The probability of responding given these characteristics was ascertained, and response weights calculated as the inverse of the probability of responding. The variables in the final response weights model were age, sex, rank, service branch, education level and cohort sample.' (Paragraph one of Analyses section)

Additionally, I wonder whether authors have information about the theatre veterans were in. Maybe this is an additional factor to be considered?

This is a factor considered; however, it is not included directly in analyses for several reasons. Firstly, all participants will have deployed to Iraq and/or Afghanistan as this was a requirement of being part of the original KCMHR cohort study. The current Veterans-CHECK sample are therefore considered an Iraq/Afghanistan era cohort. In the manuscript we provide citations to all previous published studies with this cohort to provide the reader context and detailed background information in paragraph one of the 'Methods' section.

Secondly, the current Veterans-CHECK study is focused on veterans who have left service and the majority of this sample left service over 10 years ago (detailed in Table 1). As many life experiences will have occurred in the intervening time from their deployments, to civilian life and the current pandemic, we focused on variables that were most prescient to veterans' current experience of the COVID-19 pandemic whilst also accounting for military demographic factors. We therefore controlled for factors such as their mental health and alcohol use from Phase 3 of the cohort study (2014-2016 data collection) and military demographic factors such as rank and service branch. We believe these analyses strike the right balance for this veteran group of civilian and military factors and the space we have to present different analyses of interest. Thank you again for your time reviewing this work.

Reviewer: 2

Dr. Lauren Godier-McBard, Anglia Ruskin University

Comments to the Author:

Thanks for the opportunity to review the revised version of this paper. I think the authors have addressed all my comments and I have nothing further to add.

Thank you for your time assessing this work, we are very grateful.