

Exploring the impact of COVID-19 and restrictions to daily living as a result of social distancing within veterans with pre-existing mental health difficulties

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ABSTRACT

Introduction Data are emerging showing the adverse consequences on mental health of the general public due to the COVID-19 pandemic. Little is known about the needs of veterans with pre-existing mental health difficulties during the COVID-19 pandemic.

Methods Data were collected through a cross-sectional online survey from a randomly selected sample (n=1092) of military veterans who have sought help for mental health difficulties from a veteran-specific UK-based charity. The response rate was 25.2% (n=275). Participants were asked to complete a range of standardised mental health outcomes (post-traumatic stress disorder (PTSD): Post-traumatic Stress Disorder Checklist, common mental health difficulties (CMDs): 12-Item General Health Questionnaire, difficulties with anger: 5-Item Dimensions of Anger Reactions—Revised and alcohol misuse: Alcohol Use Disorders Identification Test) and endorse a list of potential stressors related to changes to daily life resulting from COVID-19. Regression analyses were fitted to explore predictors of mental health severity.

Results It was observed that symptoms of common mental disorder and PTSD (69.3% and 65.0%, respectively) were the most commonly reported to have been exacerbated by the pandemic. Lack of social support and reporting increasing numbers of stressors related to COVID-19 were consistently associated with increasing severity of a range of mental health difficulties.

Conclusions Our findings suggest veterans who had pre-existing mental health difficulties prior to the outbreak of COVID-19 may be at increased risk of experiencing CMDs as a result of the pandemic. Intervening to improve levels of social support and offering practical guidance to better manage any additional stressors relating to the pandemic may provide strategies to help reduce the burden of mental health symptoms.

INTRODUCTION

From 24 March 2020, the UK went into 'lockdown' as a result of a pandemic of the severe respiratory syndrome, COVID-19.¹ The lockdown included the closing of schools, businesses shutting down and people working from home where possible. This resulted in many people being furloughed or made redundant, and the public were asked to stay at home to protect the National Health Service. The pandemic has had a major impact not only on the British economy but also on the population's well-being.

A study that drew a representative sample from an ongoing longitudinal survey of the UK

Key messages

- ▶ The COVID-19 pandemic has exacerbated the mental health needs of veterans with pre-existing mental health difficulties.
- ▶ Symptoms of common mental health difficulties and post-traumatic stress disorder appear to have been most exacerbated.
- ▶ Lower levels of social support were associated with increased symptom severity on a range of mental health difficulties.
- ▶ Reporting increasing numbers of stressors related to COVID-19 was associated with worse mental health status.

population investigated the potential impact that the COVID-19 pandemic has had on mental health.² The authors compared between data collected in 2018–2019 and data collected in April 2020 and observed that the prevalence of significant mental distress increased from 18.9% in 2018 to 19% to 27.7% between these two time points. The study observed that participants who were younger, female or had preschool-aged children were more likely to struggle with their mental health during lockdown.² Another longitudinal study of a Chinese population investigated the differences in mental health between the initial outbreak of COVID-19 and at the epidemic peak 4 weeks later. It reported that 25% of the general population had experienced moderate to severe symptoms of anxiety during the lockdown.³

While several articles have commented on the possible consequences COVID-19 may have for pre-existing psychiatric patients, few have published empirical evidence to support these suggestions.^{4–5} A study that sampled a North American population compared the number of self-reported COVID-19-related stressors between individuals with pre-existing anxiety, mood disorders and those with no mental health diagnosis.⁶ The results showed that the those with anxiety-related disorders reported significantly more COVID-19-related stressors than either individuals with mood disorders or no pre-existing diagnoses. The study suggests that individuals with anxiety-related disorders are at a particular risk of COVID-19-related distress compared with those with mood disorders or no mental health diagnosis.

Since the start of lockdown in the UK, there has been some evidence of an increase in the number of



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veterans seeking support from veterans' mental health charities.⁷ However, there is a paucity of research exploring the impact of COVID-19 on veterans with pre-existing mental health difficulties. Asmundson *et al*'s study suggested that those with anxiety-related disorders (such as post-traumatic stress disorder (PTSD) and stress-related adjustment disorders) are at higher risk of experiencing psychological distress during the ongoing pandemic.⁶ Therefore, veterans diagnosed with PTSD and other anxiety disorders may be at higher risk of increased mental health difficulties during lockdown. The current study aimed to investigate the effects of the COVID-19 lockdown on a sample of British Armed Forces (AF) veterans with pre-existing mental health disorders and to understand whether their symptoms worsened due to the COVID-19 pandemic. This was done by surveying a representative sample of veterans who had sought treatment from a national veterans' mental health charity in the UK. Data were collected on sociodemographic characteristics, factors related to COVID-19 and a range of health outcomes.

METHODS

Setting

A cross-sectional design was adopted. Participant recruitment occurred via a UK charity providing mental health services to veterans. The charity was chosen because it provides nationwide services and has a large number of patient referrals annually.⁸ While this charity offers to support veterans with all mental health difficulties, previous research has demonstrated that the population is most likely to seek support for symptoms of PTSD alongside other comorbid mental health difficulties.⁹

Participants

The sample was collected by searching the charities' patient management system for all patients who had consented to be contacted for research purposes and provided an email address. The sample was made up of treatment-seeking veterans, where treatment-seeking was defined as an individual who had attended at least one appointment with the charity between 1 January 2019 and 31 December 2019. Individuals are defined as veterans in the UK if they have completed a minimum of 1-day paid employment in the UK AF. A random subsample of 50% was generated, which provided a sample of 1147 patients who met all the aforementioned inclusion criteria to be contacted by the research team via email. Invalid email addresses were excluded, leaving a final sample of 1092 participants. Approval for this study was granted by the (removed for blinding) research committee.

Materials

Data were collected using an online survey, SurveyMonkey. In the email invitation, and again within the survey, participants were informed of the study aims, reminded that participation was voluntary and provided with instructions on how to opt out. Participants were given information about the study and were asked to confirm consent to participate. The survey contained five key sections: demographics, mental health and well-being, alcohol use, social support and questions exploring the impact of COVID-19.

Demographic data included age, gender and relationship status. Participants were asked to complete a range of mental health measures asking them to endorse symptoms that they may have been experiencing over the previous 4 weeks. Symptoms of common mental health difficulties (CMDs), including anxiety and depression, were measured using the 12-Item General

Health Questionnaire (GHQ-12).¹⁰ Probable PTSD was assessed using a 20-item measure known as the Post-traumatic Stress Disorder Checklist (PCL-5).¹¹ The 5-Item Dimensions of Anger Reactions—Revised (DAR-5) assessed difficulties with anger.¹² Participants were also asked to what extent their feelings for each of these had changed since before the COVID-19 pandemic. The Alcohol Use Disorders Identification Test (AUDIT) collected data on alcohol use.¹³ Participants were also asked how their alcohol consumption had changed since before the pandemic. A brief form of the Perceived Social Support Questionnaire asked six questions relating to their experiences of social support since the start of the pandemic.¹⁴ Finally, the survey included questions about the impact of COVID-19, including diagnosis of the virus, isolation, bereavement, changes in employment and other challenges. Examples of these questions include 'Has your employment or status changed since the COVID-19 pandemic began?', 'Has someone you know died from coronavirus?' and 'Do you know if you have had, or currently have, COVID-19?'

The following cut-offs were used to define if a participant met the case criteria; a score of 4 or more on the GHQ-12 indicates the potential presence of CMD¹⁰; a score of 8 or above on the AUDIT suggests hazardous or harmful alcohol use¹³; and a score of 12 or more was used on the DAR-5.¹² Analysis of the psychometric properties on the PCL-5 within UK veterans suggests a cut-off score of 34, which suggests the presence of probable PTSD.¹⁵

Procedure

Data collection was carried out between June and July 2020. All participants were contacted by email with a direct link to an online survey. Five email invitations were sent out over a 5-week period.

Analysis

The initial analysis assessed predictors of returning a completed questionnaire. Data available for both responders and non-responders included sex, age and previous service within the British AF (Royal Navy, Army or Royal Air Force). These variables had been identified a priori as potential predictors of response based on previous research investigating UK military personnel.^{9 16} χ^2 analyses were conducted for categorical data (sex and service), and a Mann-Whitney test was used for age as this was a continuous variable to explore for differences between those who responded or not. Following this, a multivariate logistic regression model was fitted (including all of the aforementioned variables) to explore predictors of response. Response weights were then generated to account for non-response. Response weights indicated the reverse probability of responding in the sampled group and were influenced by the factors associated with a response as shown in the aforementioned analysis. Weighted analyses were then used to improve the validity of the findings and the following assumptions were made: that data were missing at random and that the variables used to model non-response were correctly modelled.

The first stage was to present descriptive statistics of sociodemographic factors, factors related to COVID-19 (being a probable case and experiencing a bereavement related to COVID-19), the percentage of participants meeting case criteria across a range of mental health outcomes and whether participants reported that the symptoms of these health outcomes had worsened due to the pandemic. Following this, linear multivariate regression models were fitted to explore associations between severity of scores across the range of health outcomes and sociodemographic and

Table 1 Description of sample

| Variable, n (%) | Sample (N=275) |
|---|----------------|
| Gender | |
| Female | 14 (5.1) |
| Male | 261 (94.9) |
| Age, mean (SD) | 47.8 (11.1) |
| Service | |
| Royal Navy | 33 (12.0) |
| Army | 211 (76.7) |
| Royal Air Force | 31 (11.3) |
| Relationship status | |
| In a relationship | 181 (67.0) |
| Not in a relationship | 89 (33.0) |
| Living arrangements | |
| Living with others | 168 (72.4) |
| Living alone | 64 (27.6) |
| Employment status prior to COVID-19 pandemic | |
| Working | 140 (60.3) |
| Not working | 92 (39.7) |
| Self-reported probable COVID-19 infection | 53 (22.8) |
| Experienced a bereavement related to COVID-19 | 35 (15.1) |

Frequencies may not be up to N=275 due to missing values.

COVID-19-related factors. Regression models were adjusted for relationship status, age, living alone or not, living in a rural area or not, social support, COVID-19 stressors, probable COVID-19 infection and bereavement associated with COVID-19. The final stage of the analysis was to repeat this, but this time to explore associations between the severity of symptoms on the four subscales of the PTSD PCL-5 scale (intrusions, arousal, avoidance and negative mood). All analyses were conducted using the statistical software package, STATA V.13.0.

RESULTS

In total, 275/1092 (25.2%) participants returned completed questionnaires. Initial analyses suggested no difference in enlisted service or sex between those who responded or not (χ^2 test $p=0.50$ and $p=9.7$, respectively); however, responders appeared to be older (non-responder mean age 43.9, SD 11.2, 95% CI 43.1 to 44.7; vs responder mean age 48.7, SD 11.1, 95% CI 47.4 to 50.0, $p<0.000$). As such, age was just to generate response weights.

Study participants are described in [Table 1](#). The majority of the sample were male (male: 94.9% vs female: 5.1%), in a relationship (in a relationship: 67.0% vs not in a relationship: 33.0%), living with others rather than alone (72.4% vs 27.6%, respectively), currently working (working: 60.3% vs not working: 39.7%) and with a mean age of 48.7 years (SD 11.1). In addition, 22.8% reported having experienced a probable COVID-19 infection and 15.1% reported that they had experienced a bereavement related to COVID-19. The percentage of participants meeting case criteria for a range of health outcomes are reported in [Table 2](#). The most frequently endorsed mental health difficulties were CMD (eg, anxiety and depression). This was followed by problems with anger, PTSD and, lastly, alcohol misuse. Symptoms of CMD appeared the most likely to be reported as having been exacerbated by the pandemic (reported to have worsened by 69.3% of participants), followed by PTSD symptoms (65.0%), difficulties with anger (52.7%) and alcohol misuse (30.0%).

Table 2 Description of health outcomes

| | Sample (N=275) |
|--|----------------|
| Post-traumatic stress disorder | |
| PCL-5 score, mean (SD) | 28.8 (19.5) |
| PTSD case (PCL-5), n (%) | 137 (55.7) |
| PTSD symptoms worse due to COVID-19 | 160 (65.0) |
| CMDs | |
| GHQ-12 score, mean (SD) | 6.8 (3.7) |
| CMD case (GHQ-12), n (%) | 203 (76.9) |
| CMD symptoms worse due to COVID-19 | 183 (69.3) |
| Problems with anger | |
| DAR-5 score, mean (SD) | 13.4 (5.6) |
| Anger case (DAR-5), n (%) | 135 (56.4) |
| Anger symptoms worse due to COVID-19 | 127 (52.7) |
| Alcohol misuse | |
| AUDIT score, mean (SD) | 9.4 (8.0) |
| Harmful drinking (8+AUDIT), n (%) | 71 (45.8) |
| Alcohol symptoms worse due to COVID-19 | 67 (30.0) |

Frequencies may not be up to N=275 due to missing values.

AUDIT, Alcohol Use Disorders Identification Test; CMD, common mental health difficulty; DAR-5, 5-Item Dimensions of Anger Reactions—Revised; GHQ-12, 12-Item General Health Questionnaire; PCL-5, Post-traumatic Stress Disorder Checklist; PTSD, post-traumatic stress disorder.

Associations between the severity of mental health symptoms and sociodemographic characteristics and COVID-19-related factors are reported in [Table 3](#). Demographic characteristics did not appear to be associated with differences in symptom reporting. Similarly, reports of having experienced COVID-19 or a COVID-19-related bereavement were not associated with reporting increased symptoms. However, significant associations were observed between reporting lower levels of social support and increased stressors as a result of COVID-19 and increases in the severity of symptom reporting. In particular, there appeared to be evidence of large increases in the severity of PTSD symptoms as the number of stressors increased and social support decreased.

[Table 4](#) reported the associations between the PCL-5 PTSD subscales and potential predictor variables. A similar pattern was found in those reported previously; namely, only lower levels of social support and reported increased numbers of COVID-19-related stressors were found to be associated with increased symptom severity across all four of the other PCL-5 PTSD subscales. Reduced levels of social support and increased stressors appeared to have a larger impact on reporting intrusive or negative mood symptoms.

DISCUSSION

In this paper, we reported on the mental health status of UK treatment-seeking veterans during the COVID-19 pandemic. The participants within this study were recruited from a national veterans' mental health charity in the UK, and data were collected during June and July 2020. The presented data suggested that a sizeable percentage (22.8%) reported a probable COVID-19 infection, and 15.1% stated that they had experienced a bereavement related to COVID-19. These figures appeared to be higher than what might be COVID-19 fatality rates when compared with the general public in England.¹⁷

CMDs were observed to be the most frequently endorsed mental health difficulty. In addition, symptoms of CMD were also the most likely to be attributed as having been exacerbated due to the COVID-19 pandemic. This was followed by

Table 3 Associations predicting severity of health outcomes

| | Health outcomes | | | |
|---------------------------------|--------------------------|-------------------------|-------------------------|-----------------------|
| | β coefficient (95% CIs)† | | | |
| | PTSD (PCL-5) | CMD (GHQ-12) | Anger (DAR-5) | Alcohol (AUDIT) |
| Not being in a relationship | -3.43 (-10.3 to 3.47) | -0.39 (-1.64 to 0.86) | 1.13 (-3.39 to 1.13) | -1.71 (-4.51 to 1.09) |
| Age (increase per year) | 0.04 (-0.18 to 0.26) | -0.01 (-0.04 to 0.04) | -0.02 (-0.08 to 0.05) | -0.06 (-0.17 to 0.05) |
| Living alone | 4.46 (-3.33 to 12.3) | 0.96 (-0.43 to 2.35) | 0.07 (-2.41 to 2.54) | 1.60 (-1.73 to 4.92) |
| Living in rural area | 3.03 (-2.32 to 8.38) | 0.21 (-0.75 to 1.16) | 0.88 (-0.68 to 2.43) | 0.64 (-2.45 to 3.72) |
| Higher social support | -0.82 (-1.20 to -0.45)* | -0.14 (-0.21 to -0.08)* | -0.24 (-0.35 to -0.12)* | -0.04 (-0.27 to 1.19) |
| More COVID-19-related stressors | 10.5 (4.95 to 16.0)* | 2.28 (1.28 to 3.28)* | 2.48 (0.85 to 4.11)* | 4.98 (1.31 to 8.64)* |
| Probable COVID-19 infection | 1.40 (-6.00 to 8.79) | 0.04 (-1.28 to 1.36) | -0.56 (-2.40 to 1.28) | -1.39 (-4.72 to 1.94) |
| Bereavement related to COVID-19 | -2.02 (-8.25 to 4.21) | -0.39 (5.76 to 11.4) | -2.30 (-3.97 to -0.62)* | -1.31 (-4.24 to 1.63) |

*P<0.000.

†β coefficients adjusted for all variables in the table.

AUDIT, Alcohol Use Disorders Identification Test; CMD, common mental health difficulty; DAR-5, 5-Item Dimensions of Anger Reactions—Revised; GHQ-12, 12-Item General Health Questionnaire; PCL-5, Post-traumatic Stress Disorder Checklist; PTSD, post-traumatic stress disorder.

difficulties with anger, PTSD and alcohol misuse. Endorsing a higher number of COVID-19-related stressors and lower levels of social support was consistently associated with poor mental health status. In the case of PTSD, COVID-19 stressors and social support appeared to have a greater impact on symptoms of low mood and intrusions than avoidant or hyperarousal symptoms; the causality of these relationships is unknown. One interpretation could be that COVID-19-related stressors worsened mental health symptoms. An alternative interpretation could be that individuals experiencing more severe mental health symptoms could have less capacity to manage additional pressures related to the pandemic and were therefore more likely to report these additional pressures as stressors (eg, increased childcare responsibilities). The aforementioned findings mirror those of previous studies of individuals with pre-existing mental health difficulties prior to the pandemic but not limited to veterans, namely, that symptoms related to anxiety disorders appear to have been more negatively impacted by the pandemic than mood disorders.⁴⁻⁶ The presented findings suggest the importance of implementing social support provision during the pandemic when treating individuals with pre-existing mental health difficulties.

The prevalence rates of mental health difficulties reported in the current study appear to differ from those reported in a similar study that sampled from the same charity conducted in 2017.⁹ While direct comparison between these two studies is limited (both relied on cross-sectional surveys rather than a

longitudinal design), they both employed an identical sampling strategy from the same national veterans' charity in the UK. As they used the same psychometric tools to explore mental health status, this may allow for some trends to be explored. In the previous study, PTSD was the most commonly reported mental health difficulty, followed by problems with anger, CMD and alcohol misuse. This contrasts with data observed in the current study, which suggests that CMD (77% in 2020 compared with 72% in 2017) is the most common difficulty, while problems with PTSD (56% in 2020 compared with 82% in 2017) and anger (56% in 2020 compared with 74% in 2017) had reduced. Difficulties with alcohol misuse appeared to remain consistent between the two studies (46% in 2020 compared with 43% in 2017). As noted previously, while limitations exist in making comparisons between these two studies, there does seem to be a trend to increased rates of anxiety during the pandemic and lower levels of other mental health difficulties; however, what explains these differences is unclear. One hypothesis is that it could be explained, in part, by the lockdown that was in place in the UK during June and July 2020, which could have limited the amount of time participants were out of their homes. In turn, that could have reduced exposure to potential environments and stressors which might trigger a threat response that is central to PTSD.¹⁸

The current study profited from randomly sampling from a national cohort of treatment-seeking veterans accessing a clinical

Table 4 Associations predicting severity of PTSD PCL-5 subscale symptoms

| | PTSD PCL-5 subscales | | | |
|---------------------------------|--------------------------|-------------------------|-------------------------|-------------------------|
| | β coefficient (95% CIs)† | | | |
| | Intrusions | Avoidance | Arousal | Negative mood |
| Not being in a relationship | -0.24 (-2.37 to 1.89) | -0.24 (-1.29 to 0.81) | -1.17 (-3.19 to 0.84) | -1.78 (-4.49 to 0.92) |
| Age (increase per year) | 0.05 (-0.01 to 0.10) | 0.01 (-0.02 to 0.04) | -0.01 (-0.72 to 0.07) | -0.01 (-0.09 to 0.07) |
| Living alone | -0.09 (-2.35 to 2.18) | 0.22 (-0.93 to 1.38) | 1.35 (-0.92 to 3.62) | 2.98 (-0.12 to 6.07) |
| Living in rural area | 0.68 (-0.86 to 2.22) | 0.07 (-0.67 to 0.80) | 1.09 (-0.59 to 2.77) | 1.20 (-0.72 to 3.11) |
| Higher social support | -0.21 (-0.32 to -0.11)* | -0.06 (-0.11 to -0.01)* | -0.25 (-0.37 to -0.13)* | -0.30 (-0.43 to -0.15)* |
| More COVID-19 related stressors | 3.31 (1.79 to 4.83)* | 1.21 (0.44 to 1.98)* | 2.08 (0.37 to 3.80)* | 3.89 (1.78 to 6.01)* |
| Probable COVID-19 infection | 0.83 (-1.27 to 2.93) | 0.15 (-0.72 to 1.01) | 0.76 (-1.54 to 3.07) | -0.34 (-3.01 to 2.33) |
| Bereavement related to COVID-19 | 0.19 (-1.87 to 1.50) | -0.19 (-0.96 to 0.57) | -0.76 (-2.84 to 1.32) | -0.88 (-3.32 to 1.56) |

*P<0.000.

†β coefficients adjusted for all variables in the table.

PCL-5, Post-traumatic Stress Disorder Checklist; PTSD, post-traumatic stress disorder.

service that receives over 2500 new referrals annually. This may provide some evidence towards the generalisability of the sample. Like many countries around the world, the impact of COVID-19 and resulting restrictions and changes to daily life are changing quickly. As such, it is advantageous that data for the current study were collected over a small window (during June 2020). This meant that the overall situation related to COVID-19 was comparable across the data collection period (eg, in terms of daily incidence of COVID-19 and restrictions to daily living). However, this does also mean that the data presented provide a snapshot during a narrow time point. Other limitations need to be considered when interpreting the presented data. For example, only approximately a quarter of those invited to participate in the study responded. While we are able to explore differences between these two groups and weight analyses accordingly, we were only able to do this for three variables where data were available for all potential participants (age, sex and service branch within the military). Further, we were reliant on self-reported measures, and this may have been particularly problematic for variables such as potential exposure to COVID-19 infection.

Unfortunately, at the time of writing, the situation with the pandemic does not appear to be easing and could be getting worse as countries experience a second wave of infections and introduce further restrictions to daily living. As such, it will be important to continue to monitor the needs of veterans and, where possible, to do this longitudinally to better understand how these needs may be changing as the pandemic continues.

This study showed that treatment-seeking veterans during the COVID-19 pandemic appear to be most at risk of reporting an increase in CMD symptoms. Overall, mental health difficulties were associated with lower levels of social support and reporting a greater number of stressors that were related to COVID-19. In the UK, there is an ongoing emphasis on social distancing which could be reducing the levels of social support available. While limitations exist, the findings presented suggest the importance of clinical services adapting to promote social support and providing practical guidance for overcoming some of the challenges that have resulted from the pandemic.

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