

Adversity during military service: the impact of military sexual trauma, emotional bullying and physical assault on the mental health and well-being of women veterans

Laura Josephine Hendriks ¹, V Williamson ¹,^{2,3} D Murphy ^{1,2}

¹Research Department, Combat Stress, Leatherhead, UK
²Kings Centre for Military Health Research, King's College London, London, UK
³Department of Experimental Psychology, University of Oxford, Oxford, UK

Correspondence to

Dr D Murphy, Research Department, Combat Stress, Leatherhead, KT22 0BX London, UK; dominic.murphy@combatstress.org.uk

Received 19 July 2021
 Accepted 12 September 2021
 Published Online First 25 October 2021

ABSTRACT

Introduction Despite making up about 11% of the UK military, there remains limited investigation on the impact of adversity women experience during their service in the UK military. Military adversity can result in a range of well-being difficulties that may persist following transition out of military. The present study therefore examined the prevalence and correlates of different types of military adversity (defined as sexual harassment, sexual assault, emotional bullying and physical assault) within a community sample of UK women veterans.

Methods Participants were recruited from a UK charity supporting women veterans. 750 women veterans completed an online survey collecting information on sociodemographic and military factors, military adversity, as well as mental health and well-being difficulties. Associations between variables were explored using multivariate logistic regressions.

Results The findings indicate a high prevalence of military adversity (22.5% sexual harassment, 5.1% sexual assault, 22.7% emotional bullying and 3.3% physical assault). Younger women, those who held an officer rank during service and those who reported having a combat or combat support role during service were most at risk of military adversity. All types of adversity were significantly associated with probable post-traumatic stress disorder. Sexual harassment was additionally significantly associated with physical somatisation; sexual assault with alcohol difficulties; and emotional bullying with common mental health difficulties, low social support and loneliness.

Conclusions This study indicates that UK women veterans are at risk of a range of adverse experiences during military service and provides evidence of the impact of such adversities on mental health and well-being. Further research is required to better understand these relationships.

INTRODUCTION

The proportion of women serving in the UK Regular Forces has increased over the past years, currently making up about 11.0% of the force and equating to about 16 500 military women.¹ Women have long been permitted to serve in the UK military, but have only been eligible for deployment to all military roles including front-line combat as of 2018.² In addition to the risk of exposure to combat-related trauma, military women may face additional adversities during deployment that may

Key messages

- ⇒ Women are at a considerable risk of various forms of military adversity during service, including sexual trauma, emotional bullying and physical assault.
- ⇒ Younger women, those holding rank as officer and those in combat-related roles may be most at risk of military adversity.
- ⇒ Military adversity is associated with a range of mental health and well-being difficulties.
- ⇒ Further research into the prevalence and impact of military adversity is required.
- ⇒ Structural changes are necessary to mitigate the risk and mental health consequences of military adversity among serving women.

impact well-being and postdeployment adjustment. For example, servicewomen are significantly more likely to experience military sexual trauma (MST) than servicemen.³ A systematic review revealed that 55%–79% of women in the US military report instances of sexual harassment and up to 48% report instances of sexual assault.⁴ There is some evidence that rates within the UK are similarly high, with up to 67% of UK servicewomen reporting some form of unwanted sexual behaviour.⁵ Previous research has often grouped together experiences of sexual harassment and assault as MST, which risks overlooking the differential impact harassment versus assaultive experiences may have on women's mental health and well-being. In addition to sexual victimisation, findings highlight that a notable proportion of military women may also be subjected to physical victimisation during service,⁶ such as being threatened with physical violence and being physically assaulted.⁷ Finally, data suggest that women being a gender minority group within the military may put them at greater risk of bullying during service.⁸ However, there remains a paucity of research looking at the prevalence of bullying within the wider military. Despite the clear indication of the presence of such military adversities, there remains relatively little empirical investigation regarding the prevalence of such adversity among military women, particularly within the UK forces.

Instances of sexual, physical and emotional victimisation during service may have important consequences on women's well-being both during and



© Author(s) or their employer(s) 2023. No commercial re-use. See rights and permissions. Published by BMJ.

To cite: Hendriks LJ, Williamson V, Murphy D. *BMJ Mil Health* 2023;**169**:419–424.

Original research

after service. For example, military sexual assault can result in a range of long-term mental health, physical health, and functional difficulties including depression, post-traumatic stress disorder (PTSD), chronic pain and substance abuse.³ Sexual harassment is similarly associated with poorer physical and mental well-being.⁹ Evidence suggests that military physical victimisation may result in poorer well-being and greater adjustment difficulties, and that such difficulties may be exacerbated when compounded by MST.⁶ Finally, bullying can lead to a range of psychological difficulties, including anxiety, PTSD symptoms and even suicide.⁸ Still, there remains a limited number of studies investigating the impact of military adversities on military women. Such research is highly relevant as women appear at greater risk of military victimisation, and the impact of such experiences may compound difficulties resulting from military role-related experiences and traumas.

As such, the present study aims to investigate the prevalence of military adversity in terms of sexual harassment, sexual assault, emotional bullying and physical assault within a community-sample of UK women veterans. The present paper focuses specifically on instances of sexual, physical and emotional victimisation as these are most often referenced in the abuse literature. It further aims to identify sociodemographic and military factors associated with military adversity, as well as factors associated with mental health and well-being difficulties.

METHODS

Participants and recruitment

The sample was recruited from a charity dedicated to supporting UK women veterans. Participants were identified as eligible for the study if they (1) were a woman veteran, (2) provided the charity with consent to be contacted for research purposes and (3) provided an email address to be contacted on. A total of 1911 women veterans were identified as eligible, of whom 231 were excluded due to an invalid email address. Of the final sample of 1680 participants, 750 (44.6%) provided consent and completed the online survey.

Procedure

Participants were sent an email inviting them to take part in the study, which included a link to the online survey. The survey was created and distributed using SurveyMonkey. Participants were informed of the aim of the study and were instructed to select a response indicating consent if they wished to take part. Participants were emailed a total of four times over a six-week period, and all data were collected between August and October 2020.

Materials

The online survey consisted of four main sections, namely sociodemographic factors, military factors, military adversity, and mental health and well-being questionnaires. Participants first provided sociodemographic information, including current age, employment status, relationship status and sexuality. They then provided military-related information, including reason for leaving military, service length, last rank during service and role held during service. Next, participants indicated whether (or not) they experienced different types of adversity during military service, including sexual harassment, sexual assault, emotional bullying and physical assault.

Finally, participants completed a range of mental health and well-being questionnaires. The General Health Questionnaire 12 is a 12-item measure of common mental health difficulties (CMD) (ie, anxiety and depression), with a cut-off score of 4.¹⁰ The PTSD Checklist for Diagnostic and Statistical Manual of

Table 1 Demographic and military characteristics

Age group	
20–50	46/740 (6.2)
51–60	231/740 (31.2)
61–70	281/740 (38.0)
70+	182/740 (24.6)
Employment status	
Working or retired	628/693 (90.6)
Not working	65/693 (9.4)
Relationship status	
In a relationship	434/684 (63.5)
Not in a relationship	250/684 (36.5)
Sexuality	
Heterosexual	415/549 (75.6)
LGBT+	134/549 (24.4)
Reason for leaving military	
Voluntary	487/661 (73.7)
Non-voluntary	174/661 (26.3)
Early service leaver	
No	503/663 (75.9)
Yes	160/663 (24.1)
Last rank	
Officer	129/677 (19.1)
Other ranks	548/677 (80.9)
Reported role in service	
Combat/combat support	130/678 (19.2)
Non-combat	548/678 (80.8)
Military adversity	
Sexual harassment	169/750 (22.5)
Sexual assault	38/750 (5.1)
Emotional bullying	170/750 (22.7)
Physical assault	25/750 (3.3)
Frequencies may not add up to N=750 due to missing values.	
LGBT+, Lesbian, Gay, Bisexual, Transgender, +.	

Mental Disorders (DSM-5) is a 20-item measure of probable PTSD,¹¹ with a cut-off score of 34 previously indicated among veteran samples.¹² The Patient Health Questionnaire 15 is a 15-item measure of somatisation, with a cut-off score of 15.¹³ The Alcohol Use Disorders Identification Test is a 10-item measure of alcohol use, with a cut-off score of 8 to identify harmful use.¹⁴ The Oslo Social Support Scale 3 is a three-item measure of perceived social support, with a cut-off of 3 to identify low support.¹⁵ The Revised University of California Los Angeles (R-UCLA) Loneliness Scale is a three-item measure of loneliness, with a cut-off score of 6.¹⁶ These questionnaires were selected following a review of existing research investigating the mental health needs of UK veterans.

Data analysis

Multivariate logistic regressions were conducted to explore the associations of sociodemographic and military factors with each type of military adversity, adjusting for all included variables. Finally, multivariate logistic regressions were conducted to explore the associations of psychological, physical health and well-being difficulties with military adversity, adjusting for sociodemographic and military factors associated with military adversity.

Table 2 Associations between demographic characteristics and military-related adversity

	Emotional bullying	Physical assault	Sexual harassment	Sexual assault
	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
Age group				
20–50	1.00	1.00	1.00	1.00
51–60	0.39 (0.18 to 0.82)*	0.55 (0.16 to 1.83)	0.89 (0.42 to 1.86)	0.79 (0.25 to 2.51)
61–70	0.24 (0.11 to 0.53)***	0.23 (0.05 to 1.05)	0.30 (0.14 to 0.68)**	0.36 (0.09 to 1.40)
70+	0.11 (0.04 to 0.29)***	n/a	0.21 (0.08 to 0.56)**	0.10 (0.01 to 1.05)
Employment status				
Working or retired	1.00	1.00	1.00	1.00
Not working	2.73 (1.43 to 5.22)**	3.31 (1.10 to 9.98)*	0.94 (0.46 to 1.90)	2.00 (0.70 to 5.69)
Relationship status				
In a relationship	1.00	1.00	1.00	1.00
Not in a relationship	0.81 (0.51 to 1.29)	0.74 (0.25 to 2.24)	0.99 (0.62 to 1.59)	1.92 (0.84 to 4.40)
Sexuality				
Heterosexual	1.00	1.00	1.00	1.00
LGBT+	0.89 (0.54 to 1.46)	1.81 (0.68 to 4.78)	1.36 (0.84 to 2.21)	1.80 (0.79 to 4.13)
Reason for leaving military				
Voluntary	1.00	1.00	1.00	1.00
Non-voluntary	1.02 (0.63 to 1.64)	0.78 (0.26 to 2.34)	0.79 (0.48 to 1.30)	0.54 (0.19 to 1.51)
Early service leaver				
No	1.00	1.00	1.00	1.00
Yes	1.06 (0.62 to 1.83)	0.99 (0.25 to 3.86)	0.91 (0.51 to 1.62)	0.82 (0.25 to 2.64)
Last rank				
Officer	1.00	1.00	1.00	1.00
Other ranks	0.54 (0.32 to 0.92)*	1.10 (0.29 to 4.15)	0.40 (0.24 to 0.68)**	1.02 (0.35 to 2.93)
Reported role in service				
Non-combat	1.00	1.00	1.00	1.00
Combat/combat support	1.49 (0.89 to 2.48)	1.66 (0.58 to 4.73)	1.81 (1.09 to 2.99)*	1.79 (0.73 to 4.36)

Logistics regression model adjusted for variables in the table.
 *P<0.05, **P<0.01, ***P<0.001.
 LGBT+, Lesbian, Gay, Bisexual, Transgender, +; n/a, excluded from analysis.

All analyses were conducted using STATA V.13.0. No missing data on questionnaire items were identified. Where measures were entirely missing, these cases were excluded from analyses.

RESULTS

Sample description

The characteristics of the sample are described in Table 1. Majority of the sample were aged 61 and older (63.6%), were working or retired (90.6%), were heterosexual (75.6%) and were in a current relationship (63.5%). Majority of the sample reported holding a lower rank during military service (80.9%), staying in the military for more than four years (ie, not an 'early service leaver'; 75.9%) and voluntarily ending service (73.7%). In terms of military adversity, 22.5% reported sexual harassment, 5.1% reported sexual assault, 22.7% reported emotional bullying and 3.3% reported physical assault.

Sociodemographic and military factors associated with military adversity

The associations of sociodemographic and military factors with military adversities are described in Table 2. After adjusting for all sociodemographic and military factors, emotional bullying was associated with being 50 years or younger, not working and holding an officer rank during military service. Physical assault was associated with not working. Sexual harassment was associated with being 50 years or younger, holding an officer rank during military service and reporting combat/combat support

role. Sexual assault was not associated with any sociodemographic and military factors.

Impact of military adversity on mental health and well-being

The associations of mental health, physical health and well-being difficulties with military adversities, while controlling for age, employment, military rank and reported military role, are described in Tables 3 and 4. Emotional bullying was associated with meeting the criteria for PTSD (OR: 2.06, p=0.017, 95% CI 1.14 to 3.75), CMD (OR: 1.76, p=0.010, 95% CI 1.14 to 2.71), low perceived social support (OR: 2.14, p<0.001, 95% CI 1.41 to 3.25), as well as feelings of loneliness (OR: 1.75, p=0.006, 95% CI 1.17 to 2.61). Physical assault was associated with meeting the criteria for PTSD (OR: 4.31, p=0.004, 95% CI 1.61 to 11.55). Sexual harassment was associated with meeting the criteria for PTSD (OR: 2.30, p=0.007, 95% CI 1.25 to 4.21), as well as high physical somatisation (OR: 2.58, p=0.003, 95% CI 1.38 to 4.81). Finally, sexual assault was associated with meeting the criteria for PTSD (OR: 2.73, p=0.026, 95% CI 1.13 to 6.61) and harmful alcohol use (OR: 2.88, p=0.016, 95% CI 1.22 to 6.80).

DISCUSSION

The present study expands the limited available literature on adversities women face during military service. There were three key findings. First, there was a high prevalence of military adversity observed among the community sample of UK

Table 3 Associations between military adversity and health outcomes

	Emotional bullying	Physical assault	Sexual harassment	Sexual assault
	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
PTSD (PCL-5)				
Not case	1.00	1.00	1.00	1.00
Case	2.06 (1.14 to 3.75)*	4.31 (1.61 to 11.55)**	2.30 (1.25 to 4.21)**	2.73 (1.13 to 6.61)*
CMD (GHQ-12)				
Not case	1.00	1.00	1.00	1.00
Case	1.76 (1.14 to 2.71)*	1.39 (0.57 to 3.36)	1.43 (0.93 to 2.22)	1.14 (0.54 to 2.42)
Physical health (PHQ-15)				
Not case	1.00	1.00	1.00	1.00
Case	1.36 (0.71 to 2.59)	0.86 (0.22 to 3.37)	2.58 (1.38 to 4.81)**	1.36 (0.48 to 3.84)

Logistics regression model adjusted for age, employment status, rank and role.

*P<0.05, **P<0.01.

CMD, common mental health disorders; GHQ-12, General Health Questionnaire 12; PCL-5, PTSD Checklist for Diagnostic and Statistical Manual of Mental Disorders (DSM-5);

PHQ-15, Patient Health Questionnaire 15; PTSD, post-traumatic stress disorder.

women veterans, with 22.5% reporting sexual harassment, 5.1% reporting sexual assault, 22.7% reporting emotional bullying and 3.3% reporting physical assault. Second, younger women and those who held a rank as an officer during service were most at risk of emotional bullying and sexual harassment, while those who reported combat-related military roles were most at risk of sexual assault. Third, all forms of military adversity were associated with a greater risk of PTSD. Additional associations between military adversity and mental health and well-being difficulties were found: (1) sexual harassment was associated with a greater risk of physical somatisation; (2) sexual assault was associated with a greater risk of alcohol difficulties; and (3) emotional bullying was associated with a greater risk of CMD, lower social support and loneliness.

Sociodemographic and military factors

Previous research has demonstrated that women veterans in their midlife may be most at risk of experiencing military adversity of sexual and physical nature.⁷ Replication of such findings in the present study holds important implications as women veterans in their midlife may also be most at risk of negative health outcomes due to such adversity.⁷ The present study also replicated previous US studies demonstrating an increased risk of sexual assault among women in combat-related military roles.¹⁷ However, no increased risk of sexual harassment was observed in the present study. There remains a lack of clarity in the present

study around the self-reported combat roles as women were not permitted into combat in the UK until 2018. Further investigation is necessary to determine what aspects of 'combat' roles may be most predictive of risk of sexual assault, and whether the opportunity for UK women to join combat may leave a greater number of military women at risk of MST. Such research could inform organisational changes and leadership trainings to help mitigate women's risk of MST.

Previous findings suggest a higher incidence of sexual victimisation among military women in lower power positions.¹⁸ Contrary to this, the present study found that women who held rank as officer were at greater risk of sexual harassment as well as emotional bullying. Two military characteristics that may play a role in the greater risk of victimisation among military women are the existing gender discrepancies and ranked order nature of roles.^{8 19} This suggests that even women holding higher power positions may be at risk of victimisation from their own superiors. Additionally, as women are generally more likely to face perpetration due to their minority gender,⁸ it cannot be ruled out that victimisation of women holding higher ranks may be perpetrated by their own peers as well as those in lower ranks. There remains a need to further investigate the incidence of victimisation of women across power positions and to develop a profile of perpetrators of such victimisation.

Table 4 Associations between military adversity and functioning

	Emotional bullying	Physical assault	Sexual harassment	Sexual assault
	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
Alcohol misuse (AUDIT)				
Not case	1.00	1.00	1.00	1.00
Case	1.21 (0.66 to 2.23)	2.63 (0.93 to 7.45)	1.39 (0.77 to 2.53)	2.88 (1.22 to 6.80)*
Social support (OSS-3)				
High	1.00	1.00	1.00	1.00
Low	2.14 (1.41 to 3.25)***	1.06 (0.44 to 2.56)	1.21 (0.79 to 1.86)	1.29 (0.62 to 2.68)
Loneliness (R-UCLA)				
Not case	1.00	1.00	1.00	1.00
Case	1.75 (1.17 to 2.61)**	0.89 (0.37 to 2.14)	1.40 (0.94 to 2.09)	1.24 (0.61 to 2.51)

Logistics regression model adjusted for age, employment status, rank and role.

*P<0.05, **P<0.01, ***P<0.001.

AUDIT, Alcohol Use Disorders Identification Test; OSS-3, Oslo Social Support Scale 3; UCLA-R, Revised University of California Los Angeles (R-UCLA) Loneliness Scale.

Health and well-being

The present study further revealed that all forms of military adversity were associated with PTSD, although the strongest effects were observed among those who reported physical (OR: 4.31) or sexual assault (OR: 2.73). This is in line with previous evidence that interpersonal traumas, including physical and sexual assault, are most predictive of PTSD development (and that women are most at risk of such types of trauma).²⁰ Findings of the present study were also in line with previous evidence that MST increases women veteran's risk of alcohol difficulties.^{3 21} The current study is one of the first to demonstrate that military sexual harassment can result in physical somatisation. However, it is worth noting that this may relate to previous studies often conceptualising MST as both instances of military sexual assault and harassment.²¹ Further research that considers the two as separate constructs could provide further insight into the differential impact of sexual assault versus harassment on well-being.

Based on the available literature, the present study provides evidence that UK women veterans experience a higher prevalence of bullying during military service than found in studies in other contexts (eg, 22.7% in the current study vs 12% in mixed gender studies of Norwegian military population).²² Emotional bullying was found to be significantly associated with an increased risk of PTSD, CMD, lower social support and feelings of isolation. Such findings hold important implications as servicewomen may already face a negative impact on overall health due to lower perceived unit cohesion.^{23 24} Furthermore, bullying within military ranks is associated with moral injury,²⁵ which has been demonstrated to result in psychological difficulties such as anxiety disorders and suicidal ideation.²⁶ As women face a greater risk of military bullying,⁸ and few studies of military moral injury include women participants, it is important for future studies to consider the lasting impact this can have on their well-being after leaving the military. Such research may wish to investigate whether moral injury may mediate the association between emotional bullying and mental health difficulties.

Limitations and further research

The present study had several limitations requiring consideration. First, the study relied on self-reported data, and it remains unclear whether prevalence rates identified in the present study were under-reported or over-reported. Future research may wish to enact multiple data sources to compare prevalence across self-reported adversity and, for example, military or medical practitioner reports. However, it is worth noting that such sources may have their own shortcomings, as many women do not report adverse service experiences due to the fear of doing so.²⁷ Second, the cross-sectional nature of the study limits the ability to draw any conclusions of causal relationships between military adversity and mental health and well-being difficulties. Interviews may be one helpful avenue to gain further insight into categorising different types of military adversity and understanding their impact on women veterans' mental health and well-being.

There also remain some concerns regarding the sample. Majority of the sample were aged above 60, and it is worth considering whether the findings would generalise to younger samples. Furthermore, the survey had an uptake of 44.6%, and there remains a lack of data to infer whether responders differed from non-responders. It remains relevant to further investigate the generalisability of the present findings, for example, by employing a sample that includes more age cohorts, women who have recently left the military and/or serving military women.

Finally, it remained outside the scope of the present paper to investigate the compound impact of military adversity. Women may be subjected to multiple and/or continuous types of military adversity that may increase their risk of poor psychological and functioning well-being.

Nonetheless, the present study is one of the first to investigate the prevalence and impact of different types of military adversity in such a large sample of UK women veterans. It also examined a range of factors associated with military adversity. A final strength of the study is that given the online nature of the survey, participants may have felt more able to disclose their experience of military adversity and current mental health and functioning difficulties.

CONCLUSIONS

The present study provides evidence of a high prevalence of military adversity among UK women veterans and highlights important relationships with sociodemographic factors and mental health difficulties that require further investigation. In addition to the need for further research to better understand the relationships between military adversity and well-being, there is an urgent need for practical considerations to support military women. Many women do not report adverse service experiences due to fear of the consequences of doing so²⁷ and may continue to suffer from increased mental health distress during and after military service. It is essential to consider whether current reporting procedures may not provide sufficient confidentiality to encourage women to report adverse experiences and more appropriate disclosing procedures should be considered. Furthermore, it is essential to consider whether existing support is adequate to support the mental health needs of women who experienced military adversity. Finally, as military characteristics such as gender discrepancies, nature of military training and ranked order structure serve as antecedents of victimisation of women,¹⁹ it is worth considering whether organisational and leadership changes can be made to better protect military women.

Twitter V Williamson @vwilliamson_psy

Acknowledgements We would like to acknowledge the support of the Women's Royal Army Corps Association (<https://wracassociation.org/>). They have kindly shared lived experiences that helped shape the development of the survey and have supported the recruitment of participants.

Contributors DM planned the study and conducted the statistical analysis. LJH and VW wrote the manuscript. All authors edited and proof-read the manuscript.

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests None declared.

Patient consent for publication Not required.

Ethics approval The present study was approved by the research department at Combat Stress, a UK charity dedicated to supporting treatment-seeking UK veterans.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement Data are available upon reasonable request.

ORCID iDs

Laura Josephine Hendrikx <http://orcid.org/0000-0001-6760-3373>

V Williamson <http://orcid.org/0000-0002-3110-9856>

D Murphy <http://orcid.org/0000-0002-9530-2743>

REFERENCES

- 1 Dempsey M. UK defence personnel statistics, 2021. Available: <https://researchbriefings.files.parliament.uk/documents/CBP-7930/CBP-7930.pdf> [Accessed 13 Jul 2021].

- 2 Fieldhouse A, O'Leary TJ. Integrating women into combat roles: comparing the UK armed forces and Israeli defense forces to understand where lessons can be learnt. *BMJ Mil Health* 2023;169:78–80.
- 3 Kimerling R, Street AE, Pavao J, *et al.* Military-related sexual trauma among Veterans health administration patients returning from Afghanistan and Iraq. *Am J Public Health* 2010;100:1409–12.
- 4 Goldzweig CL, Balekian TM, Rolón C, *et al.* The state of women veterans' health research. Results of a systematic literature review. *J Gen Intern Med* 2006;21 Suppl 3:S82–92.
- 5 Rutheford S, Schneider R, Walmsley A. A quantitative and qualitative research into sexual harassment in the armed forces, 2006. Available: <https://webarchive.nationalarchives.gov.uk/20121018171845/http://www.mod.uk/NR/rdonlyres/538E55EE-9CA4-4177-9A0B-6853A431B283/0/20060522SRReport.pdf> [Accessed 08 Jul 2021].
- 6 Sadler AG, Booth BM, Nielson D, *et al.* Health-related consequences of physical and sexual violence: women in the military. *Obstet Gynecol* 2000;96:473–80.
- 7 Gibson CJ, Gray KE, Katon JG, *et al.* Sexual assault, sexual harassment, and physical victimization during military service across age cohorts of women veterans. *Womens Health Issues* 2016;26:225–31.
- 8 Stuart J, Szeszeran N. Bullying in the military: a review of the research on predictors and outcomes of bullying victimization and perpetration. *Mil Behav Health* 2020;9.
- 9 Street AE, Stafford J, Mahan CM, *et al.* Sexual harassment and assault experienced by reservists during military service: prevalence and health correlates. *J Rehabil Res Dev* 2008;45:409–20.
- 10 Goldberg D, Williams P. *A users' guide to the general health questionnaire*. Windsor: NFER Nelson, 1998.
- 11 Weathers FW, Litz BT, Keane TM. The PTSD checklist for DSM-5 (PCL-5) 2013 scale available from the National center for PTSD, 2013. Available: <https://www.ptsd.va.gov/professional/assessment/adult-sr/ptsd-checklist.asp>
- 12 Murphy D, Ross J, Ashwick R. Exploring optimum cut-off scores to screen for probably posttraumatic stress disorder within a sample of UK treatment-seeking veterans. *Eur J Psychotraumatol* 2017;1398001.
- 13 Spitzer RL, Kroenke K, Williams JB. Validation and utility of a self-report version of PRIME-MD: the PHQ primary care study. *JAMA* 1999;282:1737–44.
- 14 Babor TF, Higgins-Biddle JC, Saunders JB. *Audit. The alcohol use disorders identification test*. Geneva: Department of Mental Health and Substance Dependence, World Health Organization, 2001.
- 15 Dalgard OS. *Community mental health profile as tool for psychiatric prevention*. Aldershot: Avebury: Promotion of mental health, 1996.
- 16 Hughes ME, Waite LJ, Hawkley LC. A short scale for measuring loneliness in large surveys: results from two population-based studies. *Age Aging* 2004;26:655–72.
- 17 Leardmann CA, Pietrucha A, Magruder KM, *et al.* Combat deployment is associated with sexual harassment or sexual assault in a large, female military cohort. *Womens Health Issues* 2013;23:e215–23.
- 18 Harned MS, Ormerod AJ, Palmieri PA, *et al.* Sexual assault and other types of sexual harassment by workplace personnel: a comparison of antecedents and consequences. *J Occup Health Psychol* 2002;7:174–88.
- 19 Sadler AG, Lindsay DR, Hunter ST, *et al.* The impact of leadership on sexual harassment and sexual assault in the military. *Military Psychology* 2018;30:252–63.
- 20 Lilly MM, Valdez CE. Interpersonal trauma and PTSD: the roles of gender and a lifespan perspective in predicting risk. *Psychological Trauma: Theory, Research, Practice, and Policy* 2012;4:140–4.
- 21 Goldberg SB, Livingston WS, Blais RK, *et al.* A positive screen for military sexual trauma is associated with greater risk for substance use disorders in women veterans. *Psychol Addict Behav* 2019;33:477–83.
- 22 Østvik K, Rudmin F. Bullying and hazing among Norwegian army soldiers: two studies of prevalence, context, and cognition. *Military Psychology* 2001;13:17–39.
- 23 Brooks SK, Greenberg N. Non-deployment factors affecting psychological wellbeing in military personnel: literature review. *J Ment Health* 2018;27:80–90.
- 24 Washington DL, Yano EM. PTSD women veterans' prevalence of PTSD care. *J Gen Intern Med* 2013;28:1265.
- 25 Williamson V, Murphy D, Stevelink SAM, *et al.* The impact of trauma exposure and moral injury on UK military veterans: a qualitative study. *Eur J Psychotraumatol* 2020;11:1704554.
- 26 Williamson V, Murphy D, Stevelink SAM, *et al.* The impact of moral injury on the wellbeing of UK military veterans. *BMC Psychol* 2021;9:1–7.
- 27 Mengeling MA, Booth BM, Torner JC, *et al.* Reporting sexual assault in the military: who reports and why most servicewomen don't. *Am J Prev Med* 2014;47:17–25.