

Original Research

Mental Health of Canadian Forces Members While on Deployment to Afghanistan

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Objective: The deployed environment poses special challenges to the delivery of effective in-theatre mental health care. Our study sought to identify the prevalence and impact of symptoms of mental health problems in Canadian Forces (CF) personnel serving in Task Force Afghanistan; and, to determine the use of, and perceived need for, mental health services in CF personnel while deployed.

Methods: Our study consisted of a cross-sectional survey of all 2779 CF personnel deployed to the province of Kandahar, Afghanistan, from February 15, 2010, to March 15, 2010.

Results: An important minority (8.5%) of the 1572 respondents (response rate = 57%) exceeded civilian criteria for symptoms of acute traumatic stress, major depression, or generalized anxiety. Prevalence of these 3 mental health problems increased with higher combat exposure and location in more isolated posts. A much larger fraction (31%) reported suffering a stress, emotional, alcohol, or family problem during the deployment. Only a minority of respondents with a mental health problem (26%) were currently interested in getting help. Almost one-half of respondents with a mental health problem perceived occupational dysfunction as a result, though two-thirds of respondents with occupational dysfunction were in the group without the 3 mental health problems assessed.

Conclusions: The needs base for psychosocial support extends beyond personnel who meet conventional questionnaire criteria for traumatic stress, depression, or generalized anxiety. Future research is needed to understand what precise problems are driving this larger needs base and what precise supports (clinical or nonclinical) would be most appropriate.



Objectif : L'environnement de déploiement pose des problèmes particuliers à la prestation de soins de santé mentale efficaces dans le théâtre d'opérations. Notre étude cherchait à cerner la prévalence et l'effet des symptômes de problèmes de santé mentale chez le personnel des Forces canadiennes (FC) au sein de la Force opérationnelle en Afghanistan; et à déterminer l'utilisation, ainsi que le besoin perçu, des services de santé mentale chez le personnel des FC pendant son déploiement.

Méthodes : Notre étude consistait dans une enquête transversale menée auprès de tous les 2779 membres des FC déployés dans la province de Kandahar, en Afghanistan, du 15 février 2010 au 15 mars 2010.

Résultats : Une importante minorité (8,5 %) des 1572 répondants (taux de réponse = 57 %) excédait les critères civils du stress traumatique aigu, de la dépression majeure, ou de l'anxiété généralisée. La prévalence de ces 3 problèmes de santé mentale s'accroissait avec une plus grande exposition au combat et l'affectation à des postes plus isolés. Une fraction beaucoup plus importante (31 %) a déclaré souffrir d'un problème émotionnel, de stress, d'alcool, ou de famille durant le déploiement. Seule une minorité de répondants souffrant d'un problème de santé mentale (26 %) était présentement intéressée à obtenir de l'aide. Presque la moitié des répondants souffrant d'un problème de santé mentale percevait la dysfonction professionnelle comme étant un résultat, même si les deux tiers des répondants présentant une dysfonction professionnelle étaient dans le groupe de ceux qui n'avaient pas les 3 problèmes de santé mentale évalués.

Conclusions : La base des besoins de soutien psychosocial s'étend au-delà du personnel qui satisfait aux critères classiques du questionnaire pour le stress traumatique, la dépression, ou l'anxiété généralisée. Il faut plus de recherche pour comprendre quels problèmes précis provoquent l'élargissement de cette base de besoins et quels soutiens précis (cliniques ou non) seraient plus appropriés.

Mental health problems occur in the CF, with 15.1% of Regular Force and 12.7% of Reserve Force personnel having symptoms of 1 or more of five 12-month mental disorders.¹ Prevalence rates among Regular Force personnel are similar to those in the Canadian general population of the same age and sex, though there appears to be a significant excess burden of depression in the CF Regular Force.¹ Mental health problems are leading contributors to impaired productivity,² absenteeism,³ attrition from military service (for both medical and nonmedical reasons),⁴⁻⁶ and application for disability benefits by veterans.⁷ Mental health care also represents a large and growing fraction of health care in military organizations.^{8,9}

Deployed settings (such as Afghanistan) raise special considerations for mental health care. First, the prevalence of mental health problems could be higher than the in-garrison rate owing to the impact of operational stressors, such as combat. Indeed, 21% of US Army personnel deployed in Afghanistan in 2009 had significant symptoms of mental health problems.¹⁰ Second, mental disorder-related impairments may pose a threat to the safety and success of the operation. Finally, the deployed setting presents incremental barriers to care, particularly in forward areas. Seeking care in forward areas may require transportation through hostile territory, with attendant risks to life and limb.

The CF has been deploying mental health providers to its operation in the province of Kandahar, Afghanistan, but there were no firm data on the extent of need, its impact, or how well this delivery model was meeting mental health care needs. Faced with similar knowledge gaps, the US Army has conducted an annual in-theatre survey of personnel, the MHAT.^{11,12} The CF adapted this methodology to conduct an in-theatre mental health needs assessment, termed the OMHA. Our report will summarize the OMHA findings on need, risk factors for mental health problems (including combat exposure¹¹ and home-front stressors¹³),

Abbreviations

CF	Canadian Forces
HDO	Human Dimensions of Operations Survey
MHAT	Mental Health Advisory Team Survey
NCM	noncommissioned member
OMHA	Operational Mental Health Assessment
PCL-C	PTSD Checklist, Civilian Version
PHQ	Patient Health Questionnaire
PTSD	posttraumatic stress disorder

Clinical Implications

- The needs base for additional psychological support during deployed military operations extends beyond personnel who meet conventional questionnaire criteria for traumatic stress, depression, or generalized anxiety.
- The limited interest in receiving care among respondents with an apparent need suggests that clinical outreach alone will be insufficient to close the need-care gap.

Limitations

- This cross-sectional survey precludes any assessment of cause and effect between outcome variables and covariates.
- All findings emanate from self-reported surveys, which are prone to reporting bias.

occupational impact, and care-seeking propensity. Findings on perceived barriers to care are reported elsewhere.¹⁴

Methods

Setting

Since 2001, the CF has deployed more than 40 000 personnel in support of its mission in Afghanistan. About one-half of personnel were deployed in Kandahar Province, in southern Afghanistan. Personnel rotate in and out of Afghanistan every 6 to 9 months. In Kandahar, personnel are situated in different settings, including a relatively secure airfield, semi-isolated Forward Operating Bases, and isolated locations such as Patrol Bases. Nearly all of the more than 150 hostile deaths in CF personnel have occurred in forward areas. Mental health resources were based at Kandahar Airfield, with intermittent outreach into forward areas.

Study Population

The study population consisted of all 2779 CF personnel stationed in Kandahar Province from February 15, 2010, to March 15, 2010.

Survey Method

The cross-sectional OMHA was incorporated as a component of an ongoing organizational psychology survey, the HDO. The HDO is intended to be a census of the deployed population about halfway through their rotation. Personnel having a CF email account were emailed an invitation to take an electronic version of the survey. Personnel without email accounts received paper surveys through their unit.

Table 1 Demographic characteristics of respondents

Characteristic	n (%)
Rank	
Junior NCM	947 (66)
Senior NCM	250 (18)
Officer	234 (17)
Total	1431
Component	
Regular	1269 (86)
Reserve	208 (14)
Total	1477
First official language	
English	1287 (86)
French	204 (14)
Total	1491
Marital status	
Married or common law	813 (57)
Single, divorced, or widowed	623 (43)
Total	1436
Military service, years	
≤5	514 (35)
6 to 20	717 (49)
≥21	124 (8)
Total	1457
Total number UN and NATO tours	
1	765 (52)
2 to 4	579 (39)
≥5	124 (8)
Total	1468
Deployment location (majority of the time)	
Nonisolated	588 (41)
Semi-isolated	419 (29)
Isolated	442 (31)
Total	1449
Numbers may not add up to 1572 because of missing data. Percentages may not add up to 100 because of rounding. NATO = North Atlantic Treaty Organization; UN = United Nations	

Survey Content

The survey covered sociodemographic and military characteristics using items developed for the HDO. All other items, including a 34-item Combat Exposure Scale, came from the MHAT.¹¹ The count of combat exposures was analyzed in tertiles. Home-front stressors were assessed using 4 items asking about the death or serious illness of a family member, the birth of a child, having a relationship end, or experiencing a serious financial problem during the deployment. People with any home-front stressor endorsed 1 or more of these items

The primary outcome was the presence of 1 or more of 3 mental health problems during the previous 4 weeks:

acute traumatic stress symptoms were assessed using the PCL-C¹⁵; depression and generalized anxiety were assessed using a form of the PHQ,¹⁶ which had been adapted slightly for the MHAT.¹¹

To facilitate comparison with other findings, we report 2 different cut-offs for each mental health problem. We primarily focus on what will be termed the less stringent cut-offs, which are those used in civilian studies. For acute traumatic stress, a cut-off of 50 or more on the PCL-C was used. For depression and generalized anxiety, the validated civilian algorithm for the PHQ was followed.¹⁶ For each of these conditions we also report a more stringent cut-off, that identifies people at highest risk for impairing mental disorders.¹⁷ These more stringent cut-offs (used in the MHATs) require not only frequent symptoms of generalized anxiety or depression but also that these symptoms made it “very” or “extremely” difficult to do work, take care of things at home, or get along with other people. For acute traumatic stress, the more stringent cut-off requires a score of 50 or more and the minimum number of symptoms for the B and C criteria for PTSD under the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition. Respondents who met the less stringent cut-offs for 1 or more of these 3 conditions were labelled as having any mental health problem.

Secondary outcomes included the occurrence of psychosocial problems and perceived occupational dysfunction as a consequence of psychosocial problems. Perceived psychosocial problems were explored as a secondary outcome by asking: “During this deployment, have you experienced a stress, emotional, alcohol, or family problem?” Perceived occupational dysfunction was captured by asking if, in the previous 4 weeks, “stress or emotional problems” had “limited your ability to do your job”; “caused you to do work less carefully than usual”; or “caused your supervisor to be concerned about your performance.” Respondents were considered to have occupational dysfunction if they answered yes to any of these questions.

A series of items for the number of visits for counselling or mental health services for a stress, emotional, alcohol, or family problem from both medical personnel (physician, mental health professional, or medic) and nonmedical personnel (for example, a chaplain or other unit member) were included, as was an item on current interest in receiving care.

Statistical Analysis

Descriptive analysis of all covariates and outcome variables was done using SPSS version 15.0.¹⁸ Given that the survey represents an attempted census, confidence intervals for prevalence rates are not reported. Independence in contingency table data were assessed using the chi-square test. Logistic regression was used to explore the odds of the primary outcome (any mental health problem at the less stringent cut-off) in different risk groups, using a

single independent variable. Variables having a univariate relation with the outcome were entered into a multivariate logistic regression model. Regression results are reported as unadjusted and adjusted odds ratios and their associated 95% confidence interval.

Ethical Aspects

Survey participation was voluntary and anonymous. The research protocol was approved by the CF's Social Science Research Review Board, which follows the Tri-Council guidelines.¹⁹

Results

A total of 1572 surveys were completed (response rate = 57%). As shown in Table 1, respondents were largely junior NCM in the Regular Force with substantial military experience. There was good representation of all primary deployment locations. The HDO does not include a question on sex, but the deployed population in Kandahar was about 10% to 15% female. Branch of service (Army, Navy, or Air Force) was similarly not assessed, though Army personnel predominated.

Mental Health

As shown in Table 2, criteria for depression were met in 4.7% of respondents, anxiety in 5.3%, and acute traumatic stress in 4.6%. Any mental health problem was present in 8.5%. A much larger fraction (31%) of respondents reported a perceived psychosocial problem during the deployment, with 18% characterizing this as mild, 10% as moderate, and 3.0% as severe. Occupational dysfunction as a consequence of stress or emotional problems was reported in 12% of the overall sample.

Correlates of Mental Health Problems

Home-front stressors were reported with the following frequencies: death or serious illness in a family member (17.6%), birth of a child (3.5%), spouse or partner having left (5.4%), and serious financial problems (2.8%). "Any home-front stressor" was present in 25% of the study population.

Any mental health problem was significantly more common in the unmarried, respondents with any home-front stressor, heavy combat exposure, and who were deployed to isolated locations (Table 3). Multivariate regression showed significant independent associations only for heavy combat exposure (OR 3.9; 95% CI 2.4 to 6.4) and any home-front stressors (OR 2.0; 95% CI 1.4 to 3.0).

Relations Among Mental Health Problems, Perceived Psychosocial Problems, and Perceived Occupational Dysfunction

Figure 1 shows the interrelations among any mental health problem, perceived psychosocial problems, and perceived occupational dysfunction. Respondents with any mental health problem were more likely to report experiencing

Table 2 Psychological health outcomes

Outcome	n (%)
Depression	
Less stringent cut-off	41 (2.6)
More stringent cut-off	32 (2.1)
Total	73 (4.7)
Anxiety	
Less stringent cut-off	48 (3.1)
More stringent cut-off	34 (2.2)
Total	82 (5.3)
Acute traumatic stress	
Less stringent cut-off	1 (0.1)
More stringent cut-off	70 (4.5)
Total	71 (4.6)
Any psychological disorder	
Less stringent cut-off	46 (3.0)
More stringent cut-off	86 (5.5)
Total	132 (8.5)
Experienced stress, emotional, alcohol, or family problem	
Mild	274 (17.7)
Moderate	153 (9.9)
Severe	47 (3.0)
Total	474 (30.6)

occupational dysfunction (46%, compared with 9%, univariate OR 8.6; 95% CI 5.8 to 12.7). However, 68% with occupational dysfunction were in the group without the 3 mental health problems assessed. Most of respondents with occupational dysfunction did nevertheless perceive some sort of psychosocial problem. About one-half of respondents with a mental health problem and three-quarters with a perceived psychosocial problem perceived no occupational dysfunction.

Care Seeking

Only 30% of respondents with a mental health problem and 24% with perceived psychosocial problems had sought care (Table 4). Respondents with a mental health problem were more likely to have sought care than those without (30%, compared with 10%, $P < 0.001$ by chi-square test). While care seeking outside of health services was common, only one-quarter of respondents with a mental health problem who sought care did so exclusively outside of health services. Those who did receive clinical mental health care typically had few visits: 50% had only a single visit, 24% had 2 visits, and 26% had 3 or more visits. Only 26% of respondents with a mental health problem were interested in receiving care. Conversely, 59% of respondents who were currently interested in receiving help were in the group without 1 of the 3 assessed mental health problems.

Table 3 Risk factors and mental health

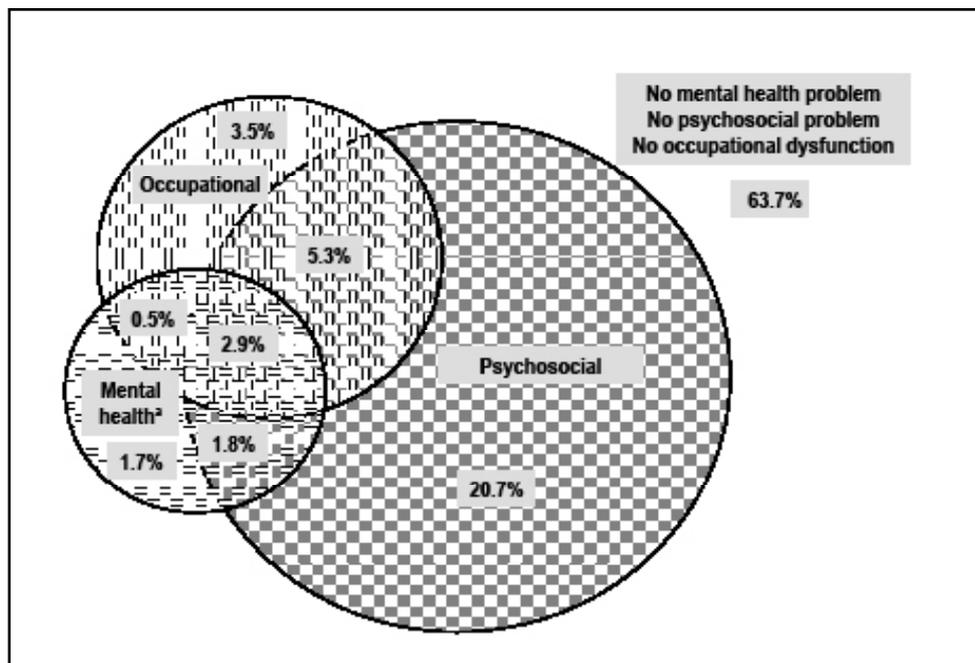
Risk factor	No mental health problem <i>n</i> (%)	Any mental health problem <i>n</i> (%)	OR (95% CI)	AOR (95% CI)
Language				
English	1174 (91.6)	108 (8.4)		
French	191 (93.6)	13 (6.4)	0.7 (0.4 to 1.3)	
Marital status				
Married or common law	761 (93.8)	50 (6.2)		
Single, divorced, or widowed	556 (89.5)	65 (10.5)	1.8 (1.2 to 2.7) ^a	1.5 (0.9 to 2.2)
Rank				
Junior NCM	857 (90.9)	86 (9.1)		
Senior NCM	235 (94.0)	15 (6.0)	0.5 (0.3 to 1.0)	
Officer	221 (94.4)	13 (5.6)	0.5 (0.3 to 1.0)	
Component				
Regular	1160 (91.7)	105 (88.2)		
Reserves	193 (93.2)	14 (6.8)	0.8 (0.5 to 1.4)	
Military service, years				
≤5	460 (89.8)	52 (10.2)		
6 to 20	664 (92.9)	51 (7.1)	0.7 (0.5 to 1.0)	
≥21	211 (93.4)	15 (6.6)	0.6 (0.3 to 1.1)	
Total number UN and NATO tours				
1	707 (92.9)	54 (7.1)		
2 to 4	527 (91.2)	51 (8.3)	0.7 (0.4 to 1.4)	
≥5	112 (90.3)	12 (9.7)	0.9 (0.5 to 1.7)	
Deployment location				
Nonisolated	554 (94.5)	32 (5.5)		
Semi-isolated	387 (92.4)	32 (7.6)	1.3 (0.7 to 2.2)	0.9 (0.5 to 1.7)
Isolated	384 (97.5)	55 (12.5)	2.3 (1.4 to 3.8) ^a	1.1 (0.6 to 2.1)
Combat exposure in tertiles				
First	520 (95.8)	23 (4.2)		
Second	470 (93.6)	32 (6.4)	1.5 (0.9 to 2.7)	1.4 (0.7 to 2.9)
Third	392 (85.2)	68 (14.8)	3.9 (2.4 to 6.4) ^a	3.5 (1.8 to 6.8) ^a
Any home-front stressor	337 (86.9)	51 (13.1)	2.0 (1.4 to 3.0) ^a	1.8 (1.2 to 2.8) ^a
^a <i>P</i> < 0.05				
NATO = North Atlantic Treaty Organization; UN = United Nations				

Discussion

Summary of Key Findings

An important minority (8.5%) of deployed personnel had significant symptoms of acute traumatic stress, major depression, or generalized anxiety. A much larger fraction (31%) reported suffering a stress, emotional, alcohol, or family problem during the deployment. Mental health problems had a strong, independent association only with combat exposure and home-front stressors, suggesting that these are important drivers of impaired well-being while deployed. Need was concentrated in more forward areas, where barriers to care are known to be more prevalent,¹⁴ but this was fully accounted for by combat exposure

(more prevalent in more forward areas) or other covariates as opposed to differential access to care. Self-reported occupational dysfunction occurred in 12% of respondents and was far more common in those with mental health problems (46%, compared with 9%). Nevertheless, two-thirds of respondents with perceived occupational dysfunction were in the group without the 3 mental health problems we assessed. Only one-quarter of respondents with a mental health problem had sought care, and only one-quarter were currently interested in getting help. Conversely, more than one-half of respondents interested in getting help were in the group without the 3 mental health problems we assessed.

Figure 1 Overlap of mental health problems, perceived psychosocial problems, and perceived occupational dysfunction

^a One of 3 mental health problems assessed: acute traumatic stress, depression, or anxiety

Table 4 Help seeking and mental health

Type of care	Any mental health problem <i>n</i> (%)		Any psychosocial problem <i>n</i> (%)	
	No	Yes	No	Yes
No care	1226 (89.2)	74 (66.7)	975 (93.3)	322 (73.9)
Any care	143 (10.4)	31 (29.5) ^a	71 (6.8)	101 (23.9)
Care from health services only	97 (7.0)	28 (25.0)	56 (5.3)	67 (15.2)
Nonhealth services ^b care only	105 (7.4)	35 (27.3)	33 (3.1)	105 (22.4)
Current interest in care for a stress, emotional, or family problem	49 (3.5)	34 (26.4)	16 (1.5)	67 (14.2)

^a $P < 0.001$ by chi-square test

^b Nonhealth services care includes care received from a chaplain or other member of the unit.

Comparison With Other Literature

Mental Health Problem Prevalence Rates. Methodological and contextual differences make it difficult to compare prevalence rates across different military studies.^{20,21} For studies on the mental health effects of deployments, important differences to consider include: the study population, differences in deployment experiences (for example, combat exposure and deployment length), assessment methods (including questionnaire cut-offs), the mental health services delivery model, and differences in mental disorder-related stigma.²²

With these caveats in mind, our prevalence rates are well below those reported in any of the US MHATs. For example, MHAT-VI¹⁰ found that 21% of respondents met criteria for 1 or more mental health problems at our more

stringent cut-off, compared with 5.5% of our respondents. This difference could be accounted for by the United States' much longer deployment duration; shorter dwell time (time between deployments); and higher combat exposure, all of which have an association with mental disorders during deployments.¹⁰ Thus these large differences may not reflect differences in the resilience of CF personnel relative to US soldiers.

Data from deployed UK Armed Forces personnel in Iraq showed a more comparable rate of acute traumatic stress symptoms using the PCL-C at our less stringent cut-off (3.4%, compared with 4.6%)²³; this may be attributable to deployment circumstances more similar to our own. Unfortunately, the UK study used a noncomparable instrument to assess anxiety and depression.

Association of Mental Health Problems With Covariates

Our finding of a strong relation between mental health problems and combat is consistent with other research done during¹⁰ and after deployments.^{24–26} Others^{27,28} have also observed a strong association between home-front stressors and intradeployment mental health. Our finding of no significant association of mental health problems with number of deployments contrasts starkly with US data showing that personnel with 1 previous deployment had a 4.5 percentage point increase in the prevalence of any mental health problem (at the more stringent cut-off), and those with 1 more deployment had an increase in prevalence of an additional 12.9 percentage points.¹⁰ This difference could again be accounted for by longer deployments and shorter dwell times between deployments in the United States. Alternatively, the previous deployments of CF members may have differed in important ways from people in the US MHATs.

Care Seeking

Neither the MHATs nor the UK in-theatre needs assessment reported their results in a way that facilitates comparison with our own findings. However, in-theatre,¹⁰ postdeployment,¹⁷ in-garrison,^{29,30} and civilian³¹ research clearly indicates that only a minority of people with disorders will seek care in any given year. The low rates of care seeking and limited number of visits is consistent with the reality that deployed personnel face many of the barriers that their civilian and in-garrison military counterparts do, plus numerous others.¹⁴

Limitations

The response rate of 57% reflects the reality of survey administration in a combat zone. Nevertheless, we did achieve good capture of personnel in more forward areas. The modest sample size and relatively low prevalence of the primary outcome limited our ability to detect smaller differences and to perform more in-depth modelling.

Self-reporting of symptoms and perceived impairment has limitations if respondents do not reply truthfully or lack sufficient insight. Reporting of usage rates may also be inaccurate for similar reasons. The instruments we used for mental health problems have never been validated against a gold standard clinical interview in the deployed setting. The prevalence rates reported reflect respondents who met cut-off criteria and not actual clinical diagnoses. The MHAT questions on perceived psychosocial problems, interest in care, and occupational dysfunction have face validity, but they have never undergone formal validation against an objective standard.

Other mental health problems, such as substance abuse or other Axis I diagnoses, were not evaluated. However, it may be argued that the contribution of these to the psychological health in this deployed population would likely have been very small. There was virtually no access to alcohol on this particular deployment, so active alcohol use disorders are

improbable. Serious mental illness (for example, psychotic disorders) is also unlikely in this active military population. Neither panic disorder nor social phobia were assessed, but the 12-month prevalence of these in the CF is only 1.8% and 3.2%, respectively.²⁹ These anxiety disorders are highly comorbid with the conditions that were assessed, particularly in people with significant dysfunction. Finally, even when a broader panel of disorders are assessed (including social phobia and panic disorder), substantial perceived need for care and use of services occurs in the absence of a major Axis I disorder.²⁹ For these reasons, we believe that many in the group with occupational dysfunction in the absence of the 3 conditions we assessed likely did not have another major Axis I disorder as its cause.

Finally, the cross-sectional nature of the OMHA precludes cause-and-effect interpretations of associations, such as that seen between combat exposure and mental health problems. Nevertheless, studies using a longitudinal design^{24,32–34} have also shown these associations.

Implications

The primary objective of our study was to provide a snapshot of the psychological health of this deployed population to determine if the services available met the needs. We suspected that the strict cut-off scores for PTSD, depression, and anxiety used in US MHATs likely underestimated the full extent of psychological health needs. Consequently, we explored other measures of need, such as perceived psychosocial problems and occupational dysfunction that are measured by MHAT methodology, but which have never been systematically reported.

Some degree of stress and strain is to be expected in military operations. How much is too much? Answering this question only in reference to stringent cut-offs for symptoms of traumatic stress, depression, or generalized anxiety will miss a large group of people who perceive that their psychosocial problems are interfering with their work. It is this group (rather than the fraction scores above a particular cut-off on a psychometric test) that will be of primary interest to military leaders. While personnel with subclinical and nonimpairing levels of distress are clearly of lower priority as a target for additional support, effective support would enhance the well-being of personnel. The association we found between home-front stressors and mental health problems suggest that interventions to attenuate the former would pay dividends in terms of the latter.

Determining what precise sorts of incremental support would be required for this broader needs base hinges on a deeper understanding of the underlying needs. Are these largely subthreshold conditions? Or are they major Axis I disorders that our survey instruments did not assess? Regardless, the limited interest in professional care and the challenges of delivering it make nonclinical interventions particularly appealing for deployed operations. In the

absence of greater interest in professional care, clinical outreach into forward areas alone is unlikely to be effective.

Conclusion

The picture our study paints is fundamentally one of resilience, not psychopathology, distress, and dysfunction. Despite the extraordinary demands of the operation, most personnel had no apparent need for any sort of additional support, even under our broadest formulation of need and care. However, we did identify an important minority who could benefit from additional support. Such support needs to target the larger needs base that exists beyond people who meet conventional cut-offs for the most commonly assessed mental health problems. Future research needs to explore this broader needs base to understand what types of interventions, either clinical or nonclinical, might be most appropriate.

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