Investigating the characteristics of Canadian Armed Forces help-seekers, non-help seekers, and no mental health need groups: A population-based analysis

Valerie M. Wood^a, Brooke Linden^b, Linna Tam-Seto^b and Heather Stuart^b

ABSTRACT

Introduction: This secondary analysis compared three groups of Canadian Armed Forces (CAF) members in their demographics and attitudes toward mental health care: those with a need who have sought help (help-seekers), those with a need who have not sought help (non-help seekers) and those with no current need (no-need). **Methods:** Data from the 2013 Canadian Forces Mental Health Survey, which included responses from 6,996 Regular Force and 1,469 Reserve Force members, was used. Several variables were applied to classify members according to mental health need and help-seeking status. **Results:** The three groups had distinct demographic profiles. In addition, results from a discriminant function analysis indicated group differences in attitudes toward mental health care. Help-seekers reported more negative attitudes toward acquiring mental health care for reasons that relate to stigma and career implications, while non-help seekers reported more negative attitudes toward mental health care that reflect a distrust of professionals and preference for self-management. **Discussion:** These findings suggest more can be done to further support help-seekers who report stigma and to support non-help seekers who may have attitudinal barriers to traditional care but may benefit from innovative care solutions.

Key words: Canadian Armed Forces mental health, Canadian Forces mental health, help-seeking, mental health care, mental health stigma, military mental health

RÉSUMÉ

Introduction : La présente analyse secondaire comparait les caractéristiques démographiques et les attitudes à l'égard de la santé mentale de trois groupes de membres des Forces armées canadiennes : ceux qui avaient des besoins et avaient demandé de l'aide (demandeurs d'aide), ceux qui avaient des besoins et n'avaient pas demandé d'aide (non-demandeurs d'aide) et ceux qui n'avaient pas de besoins pour le moment (pas de besoins). **Méthodologie :** Les données tirées de l'Enquête sur la santé mentale dans les Forces armées canadiennes 2013 ont inclus les réponses de 6,996 membres de la Force régulière et de 1,469 membres de la Réserve. Plusieurs variables ont été appliquées à la classification des membres en fonction de leurs besoins en santé mentale et de leur type de demande d'aide. **Résultats :** Les trois groupes présentaient des caractéristiques démographiques distinctes. De plus, les résultats de l'analyse discriminante indiquaient les différences d'attitude à l'égard de la santé mentale selon les groupes. Les demandeurs d'aide avaient des attitudes plus négatives envers l'acquisition de soins en santé mentale à cause de préjugés et des répercussions sur leur carrière, alors que les non-demandeurs d'aide avaient des attitudes plus négatives à l'égard des soins de santé mentale qui reflétaient une méfiance envers les professionnels et une préférence pour l'autogestion. **Discussion :** Ces résultats laissent supposer qu'on peut en faire plus pour soutenir les demandeurs d'aide qui constatent des préjugés et pour soutenir les non-demandeurs d'aide qui peuvent se créer des barrières psychologiques envers les soins traditionnels, mais qui pourraient profiter de solutions novatrices aux soins.

Mots-clés : demande d'aide, préjugés entourant la santé mentale, santé mentale dans les Forces armées canadiennes, santé mentale dans les Forces canadiennes, santé mentale des militaires, soins en santé mentale

^a Department of Psychology, Queen's University, Kingston, ON

^b Health Services and Policy Research Institute, Queen's University, Kingston, ON

Correspondence should be addressed to Valerie M. Wood at valerie.wood@queensu.ca

INTRODUCTION

Difficult deployments in the 1990s, and more recently the mission in Afghanistan, have highlighted the need for research focused on understanding and supporting the mental health of military populations.¹ Exposure to traumatic events during combat and peacekeeping missions is associated with the presence of mental health disorders among military personnel.² Among Canadian Armed Forces (CAF) personnel deployed in support of the mission in Afghanistan, it is estimated about 13.5% were diagnosed with mental disorders attributed to their involvement in this mission.³ Aside from increased exposure to trauma or risk to injury, military life is also characterized by regular family relocations and extended absences as a result of training or deployment.⁴ These life experiences can pose challenges for military members and their families to access adequate and timely mental health care. The need for these services is evident. In 2013, for example, Statistics Canada data⁵ suggested that 1 in 6 Regular Force members had experienced depression, generalized anxiety disorder, posttraumatic stress disorder (PTSD), panic disorder, or alcohol abuse/dependence in the previous 12 months. This is significantly higher – in some cases double (e.g., depression, generalized anxiety) – than the general Canadian population.⁵ Considering the data reflects only 5 mental disorders among the approximately 300 recognized in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5),⁶ the overall prevalence of mental health concerns is likely much higher.

Despite the high prevalence of mental disorders among military personnel, only 17% of Regular Force CAF personnel sought care from a mental health professional in 2013.⁷ In addition, about 15% of Regular Force CAF personnel reported needing professional help for a mental health issue, but not receiving it.⁷ The most commonly cited barriers to accessing care were the desire to self-manage their concerns, fear of the impact on their military career, and the fear of asking for help.⁷

A growing body of research has focused on understanding what differentiates military personnel who seek help for mental health concerns from those who do not seek help. Many researchers have focused on the role of attitudes toward care and anticipated stigma, or the extent to which military members believe they will be perceived or treated negatively if their mental health issue or help-seeking behaviour becomes known by others.⁸ Findings indicate a complex relationship

between help-seeking intentions, mental health service use and stigma, in particular. For example, a review⁹ reported that some studies found no association between perceptions of stigma and help-seeking intentions or service use, while others report a positive relationship between stigma and propensity for help-seeking. More recently, however, one study found greater perceptions of self-stigma (i.e., negative self-judgments for seeking help) were associated with attending fewer mental health care sessions among active military service members over a two-year period, while perceptions of public stigma (i.e., perceptions of public attitudes toward those who seek help) were not associated with future service use.¹⁰ Therefore, while the relationship between stigma and help-seeking among military personnel is complex, inconsistencies across studies may reflect methodological inconsistencies and the potential presence of important moderating variables, such as type of stigma, not previously addressed. Aside from understanding the role of stigma and attitudes toward the mental health care system in military members' help-seeking propensities, other research has focused on understanding demographic differences between military members who report a need for care, relative to those with less reported needs for care.¹¹ However, there has been an important oversight in the literature, such that researchers have not made direct comparisons in attitudes toward the mental health care system (including barriers to care) among those who have a mental health need (perceived or objective) and have sought help, those with a need who have not sought help, and those with no apparent need.

Using a nationally representative sample of CAF personnel, the goal of this study was to compare potential demographic and attitudinal differences among the following CAF personnel: (1) those who reported a current mental health concern and who have recently sought support for their mental health (*help-seekers*); (2) those who reported a mental health concern but who have not recently sought support (*non-help seekers*); and (3) those who did not report having a mental health concern (*no-need*). In addition to examining differences in socio-demographic variables across these groups, the authors were also interested in examining potential group differences in attitudes toward mental health care, including perceptions of potential stigmatization (both self and public/CAF sources of stigma). A combination of objective and subjective measures of mental health need was used for the following reasons.

First, the literature on military mental health shows military-related stressors are not only associated with more common mental disorders (e.g., generalized anxiety disorder [GAD], and panic disorder), but also more general adjustment disorders. In addition, research using population-based surveys has not found a strong relationship between the presence of a DSM diagnosis and more subjective measures (perceptions) of a need for mental health care.¹¹ For this reason, there has been an increased need to use multiple methods to assess the presence of mental health issues at the population level.

METHODS

Participants and procedure

Data from the 2013 Canadian Forces Mental Health Survey (CFMHS),¹² a national survey conducted in conjunction with Statistics Canada, were used in this study. The data were collected from a stratified random sample of CAF personnel based on rank, Afghanistan mission deployment status and force employment type (Regular vs. Reserve). The target population included CAF Regular Force personnel ($n = 67,776$, with $n = 30,454$ deployed in support of Afghanistan mission) and CAF Primary Reserve Force personnel who had deployed in support of the mission in Afghanistan ($n = 4,578$). Questionnaires were facilitated through confidential, face-to-face computer-assisted interviews with Statistics Canada personnel on designated bases and wings, between April and August 2013. A total of 6,996 Regular Force and 1,469 Reserve Force personnel participated, yielding response rates of 79.6% and 78.8%, respectively.¹²

Measures

Demographics

Demographic items were captured using items developed by Statistics Canada for household surveys. These items are categorized and reported in Table 1. Participants reported their sex, age, marital status (single, living common-law or married, separated or divorced, or widowed), element (Army, Navy, or Air Force), force (Regular or Reserve), rank category (Junior Non-Commissioned Member [NCM], Senior NCM, or Officer), education level (less than high school, high school, some post-secondary, and post-secondary completion), household income, and base region (Atlantic Canada, Quebec, Ontario, or Western Canada).

Mental health need

Several variables were used to classify participants into those currently experiencing a mental health need, versus those with no current mental health need. First, participants were asked whether they currently had a diagnosed mood disorder, anxiety disorder, or PTSD, that had been diagnosed by a health professional and was expected to last/had already lasted six months or more. Participants who indicated receiving a diagnosis for any of these disorders were defined as having a mental health need. Second, participants were asked to rate their mental health on a Likert scale ranging from 0 (*poor*) to 4 (*excellent*). Those who self-rated their mental health as poor were defined as having a mental health need. Third, participants were asked to complete two mental health screening instruments; the Mental Health Continuum – Short Form (MHC-SF)¹³ and the 10-item Kessler Psychological Distress Scale (K-10).¹⁴ The MHC-SF is a 14-item instrument used to classify respondents as having “languishing,” “moderate,” or “flourishing” mental health. The scale also differentiates between high and low emotional well-being. Participants are asked to respond to each item on a Likert scale from 0 (*never*) to 5 (*every day*). Similarly, the K-10 includes 10 items that capture the respondent’s overall level of distress, which is assessed on a scale from 1 (*none of the time*) to 5 (*all of the time*). Participants were classified as having a mental health need, if their scores on the MHC-SF reflected low emotional well-being or languishing mental health, or if their scores on the K-10 were equal to, or above, the cut-off for moderate distress. Finally, participants were asked to complete a number of screeners for major mental health disorders according to the World Health Organization Composite International Diagnostic Interview (WHO-CIDI),¹⁵ which is assessed using DSM-IV criteria.¹⁶ Those who met the criteria for depression, generalized anxiety disorder, PTSD, panic disorder, or alcohol dependency within the past 12 months were defined as having a mental health need. In summary, participants were classified as having a mental health need if they met any of the following conditions: had received a mental health diagnosis from a health professional; had poor self-rated mental health; had MHC-SF scores indicating either languishing mental health or low emotional well-being; had K-10 scores that met the cut-off for moderate distress; or if they met the criteria for a major mental disorder according to the presence of related symptoms in the past 12 months. Participants

Table 1. Demographic characteristics of mental health groups

	Help-seekers Weighted % (SE)	Non-help seekers Weighted % (SE)	No-need Weighted % (SE)
Age, years (mean)	35.9 (0.3)	35.8 (0.5)	35.3 (0.1)
Sex			
Male	79.7 (1.3)*	89.1 (1.5) [†]	88.0 (0.5) [†]
Female	19.7 (1.3)*	10.9 (1.5) [†]	12.4 (0.5) [†]
Marital status			
Married/common-law	59.2 (1.4) [†]	58.7 (2.4) [†]	68.0 (0.6)*
Single	27.0 (1.3) [†]	33.5 (2.3)*	28.0 (0.6) [†]
Separated/divorced/ widowed	13.2 (1.0)*	7.4 (1.2) [†]	6.0 (0.3) [†]
Element			
Army	62.0 (1.5) [†]	60.9 (2.3) [†]	40.5 (0.7)*
Navy	15.2 (1.1)	13.9 (1.7)	17.0 (0.5)
Air Force	22.2 (1.2) [†]	24.8 (2.1)	30.0 (0.6)*
CAF force	91.7 (0.4)	91.7 (0.8)*	94.0 (0.1) [†]
Regular Force	6.3 (0.4)	8.3 (0.8)*	6.4 (0.1) [†]
Reserve Force			
CAF rank			
Jr NCM	60.0 (1.3) [†]	60.0 (2.2) [†]	54.0 (0.4)*
Sr NCM	24.8 (1.1)	26.1 (1.9)	18.0 (0.3)
Officer	14.7 (0.9) [†]	13.9 (1.3) [†]	24.0 (0.3)*
Education			
Less than high school	4.2 (0.6)	6.1 (1.1)	3.8 (.3)
High school	26.5 (1.4)	30.4 (2.2)*	26.0 (0.6) [†]
Some post-secondary	9.7 (0.9)	9.1 (1.4)	8.7 (0.4)
Post-secondary	58.8 (1.5)	54.4 (2.3) [†]	64.0 (0.7)*
HH income (mean)	\$95,400 [†] (\$1,171)	\$97,000 [†] (\$2,234)	\$103,800* (\$720)
Base region			
Atlantic	21.3 (1.2)	20.9 (1.9)	22.0 (0.)
Quebec	13.7 (1.0)	18.7 (2.0)	15.7 (0.5)
Ontario	36.5 (1.5)	32.2 (2.4)	38.0 (0.7)
Western	28.0 (1.4)	28.3 (2.4)	24.0 (0.6)

Note: These are weighted estimates based on $n = 12,000$ for help-seekers, $n = 4,600$ for non-help seekers, and 50,000 for the no-need groups, and using both sampling and bootstrapping weights.

NCM = non-commissioned member; HH = household

*[†] indicates that groups are different according to non-overlapping 95% confidence intervals

were classified as having no mental health need if they had an absence of any of the above conditions.

Recent help-seeking status

Two variables were used to evaluate whether participants sought help for a mental health need in the past 12 months. Participants were asked (1) whether they had consulted with a professional or utilized a

professional service (e.g., psychologist, psychiatrist, nurse, social worker, counsellor, etc.) in the past 12 months for problems with emotions, mental health, alcohol, or drugs; and/or (2) whether they consulted with a non-professional, or utilized a non-professional service (e.g., family, friends, internet, CFMAP, etc.) in the past 12 months for these problems. If participants answered “yes” to either of these items, they were classified as having

recently sought help for a mental health concern. If they answered “no” to both items, they were classified as not having recently sought help for a mental health concern.

Attitudes toward mental health care

Twelve items captured respondents’ beliefs about the mental health care system, as well as perceptions of how receiving care may impact their lives and work. Specifically, these items examined perceptions of the negative impact receiving mental health services may have in CAF. While some of these items were based on the Land Combat Study (LCS) conducted by the Walter Reed Army Institute for Research in the United States, new statements were added.

Statistical analysis

Based on the criteria outlined above, the study categorized participants into the following three groups for analysis, based on the presence of a mental health need, and recent help-seeking status: (1) *help-seekers* (those with a current mental health need and who had recently sought support, weighted $n = 12,000$); (2) *non-help seekers* (those with a current mental health need who had not recently sought support, weighted $n = 4,600$); and (3) *no-need* (those with no current mental health need, weighted $n = 50,000$).

Demographic characteristics between groups were assessed using parameter estimates (weighted proportions) and 95% confidence intervals. Non-overlapping intervals were used to indicate statistically significant differences.^{17,18,19} In order to comply with Statistics Canada’s confidentiality policies, only the weighted proportions, which are based on counts rounded to the nearest 20, were reported. Both the sampling weight that accounts for the stratified sampling method and non-response, and the 500 bootstrap weights supplied by Statistics Canada for accurate variance estimation, were reported. Therefore, these estimates are reflective of the entire CAF population. In order to assess differences between mental health groups and attitudes toward mental health care, the authors performed a discriminant function analysis. This analysis assessed whether predictor variables – in this case, 12 items that tap into attitudes toward mental health care – can reliably determine group membership, here represented as a mental health group. The sampling weight was applied to these analyses. Initial analysis revealed that the assumption of homogeneity of group variances was violated, with Box’s $M = 11406.17$, $F(156,518613745) = 73.07$, $p < 0.001$. However, this test does tend to be overly sensitive to such

violations.²⁰ Tests of inference tend to be more robust to such violations than classification and, given that inference was more relevant for our purposes, the authors proceeded with the interpretation of the inference tests, but did not interpret the tests of classification.

RESULTS

Demographic variables

There were a number of statistically significant differences in the demographic profiles of the groups (see Table 1). The help-seeking group contained more females and more individuals who were separated, divorced, or widowed, relative to other groups. The non-help seeking group contained more Reserve Force members, those with a high school education and were more likely to be single (e.g., never married), relative to other groups. Finally, the no-need group was comprised of more married individuals, fewer Army and more Air Force personnel, fewer Junior NCMs and more officers, those earning a higher income, and more individuals with a post-secondary education, relative to the other two *need*-based groups.

Attitudes toward mental health care

All 12 of the tests of equality of group means were significant, indicating the user groups were different in their attitudes toward mental health care (Wilks λ ranging from 0.94 to 0.99, and all p values < 0.001). Two canonical discriminant functions were produced, one that was driven by the prediction of help-seekers (unstandardized canonical discriminant function loading = -0.71 , relative to -0.15 and 0.18), and the other that was driven by the prediction of the non-help-seekers (loading = -0.41 , relative to 0.06 and 0.02). The first function had a moderate canonical correlation coefficient (0.32), while the second function had a small correlation coefficient (0.11), which squared is an estimate of effect size, suggesting a small-moderate relationship between attitudes toward care and group membership. Both functions were able to statistically predict group membership (Wilk’s $\Lambda = 0.89$ and 0.99 , and both p values < 0.001). The first function differentiated the help-seekers from the non-help-seekers and no-need groups. The structure matrix of correlations shows the strength of the correlations between each item and the discriminant functions and indicates which items are significantly predicted by each function (see Table 2). Accordingly, the best predictors for distinguishing help-seekers from the other groups were perceptions that CAF unit leaders might treat one differently, that one would be seen as weak,

Table 2. Structure matrix of function loadings for attitudes toward mental health care items

	Function	
	1 (Help-seekers vs. other groups)	2 (Non-help-seekers vs. other groups)
If you needed to seek mental health services ...		
CF unit leaders might treat you negatively	.760*	.284
You would be seen as weak	.758*	.409
It would harm your CF career	.651*	.357
Military leaders would discourage it	.605*	.306
It would be difficult to get time off	.585*	.066
Professional will not be able to relate to my situation	.426*	.406
Mental health treatment is a last resort	-.027	.706*
Treatment wouldn't be effective for you	.002	.699*
Prefer to deal with it on your own	-.096	.697*
You would be given medicine that could harm you	.241	.575*
You would have difficulty disclosing personal info	.245	.490*
You wouldn't trust a mental health professional	.341	.490*

Note: This table shows the pooled within-groups correlations between discriminating variables and standardized canonical discriminant functions.

* Largest absolute correlation between each variable and any discriminant function

that seeking mental health services would harm your CAF career, that military leaders would discourage it, that one would have difficulty taking time off work as a result, and that a professional might not be able to relate to one's situation. In other words, help-seekers had more negative attitudes toward seeking mental health care for reasons that relate to anticipated stigma from leaders, perceived weakness, and negative career implications (loadings from 0.43 to 0.76). The predictors that best distinguished the non-help-seekers from the other two groups were the belief that seeking mental health treatment should be a last resort, that it would not be effective, that they would want to personally manage the issue, that they could potentially be given harmful medication, that they had difficulty in disclosing personal information, and that they had a distrust for mental health professionals (loadings from 0.49 to 0.71). The non-help seeking group had more negative attitudes toward seeking mental health care that related to perceived ineffectiveness and a distrust of mental health care and a preference to self-manage issues.

DISCUSSION

Summary of findings

While a growing body of research has focused on understanding the relationships between stigma, attitudes

toward the mental health care system, and mental health status in military members, there has been an important oversight in this literature. Previous researchers have examined how attitudes toward mental health are moderated by military members' mental health status and help-seeking propensity or history among those with a mental health need.^{21,22} However, they have not considered the interaction of these two factors, or directly compared attitudes toward the mental health care system, including barriers to care, among those who have a mental health need and have sought help, those with a need who have not sought help, and those with no apparent need. For this reason, previous research has not adequately addressed differences between those with a mental health need who have sought help, with those who similarly report a need but have sought help. Using the WHO-CIDI and DSM-IV consistent clinical criteria, and other validated scale clinical thresholds, this study noted significant differences between these three groups of CAF personnel with respect to their demographic profiles and attitudes toward the mental health care system.

Regarding socio-demographics, it was determined the help-seeker group was made up of more females, and members were more likely to be separated, divorced or widowed, relative to the other groups. The non-help

seeker group included more Reserve Force personnel, those with a high school education, and those who were single, relative to the other groups. Finally, the no-need group contained more married individuals, Air Force personnel, officers, those earning a higher average income, and those with a post-secondary education, relative to the other need-based groups.

The help-seekers had more negative attitudes toward seeking mental health care for reasons that relate to anticipated stigma from leaders, perceived weakness, and potential negative career implications, relative to the other groups. Negative attitudes toward care for this group, including perceptions of stigma, might be a consequence of previous care-seeking. They are not only more aware of barriers to care,²² but the impact of stigma one experiences after receiving help (and a potential diagnosis).²³ These individuals may also be more aware of structural barriers to care and may have lived through stigmatizing experiences, resulting from their help-seeking.^{23,22} However, compared to the other groups, the non-help-seekers had more negative attitudes toward seeking mental health care that related to perceived ineffectiveness of the system, a distrust of mental health care professionals, and a preference for self-managing issues. This is a novel finding and may help clarify inconsistencies in the literature and the complex relationship between stigma and help-seeking.^{9,22} It is possible that, for non-help seekers, these perceptions might act as a deterrent or attitudinal barrier to accessing required help.²²

Strengths and limitations

Perhaps the most notable strength of this study is the use of a high-quality Statistics Canada data set based on a large representative sample of CAF members with a relatively high response rate.²⁴ Further, these variables were produced through validated protocols, including the WHO–CIDI clinical interview protocols and validated scales. In addition, while some mental health measures were more direct (e.g., asking the respondent whether they had a particular mental health disorder), others were indirect, such as assessing whether the respondent met the criteria for a particular mental health condition, regardless of their recognition of symptoms, in addition to completing scales on general psychological distress and well-being.

However, these strengths are qualified by some limitations. First, this data is cross-sectional in nature, so it cannot be ruled out that the potential exists for

method invariance due to all variables being assessed in a single session. In addition, in this analysis, particular mediating mechanisms were not explored that might explain why these groups differed in their attitudes toward help-seeking and the mental health care system. Observed group differences may reflect cultural distinctions across elements, ranks, units, or even access to care, particularly for those in the Reserve Forces and remote locations. Future research should continue to assess differences among these need-based groups in order to better understand the factors contributing to help-seeking attitudes. This information will better inform programs and policies appropriate for these groups to most effectively motivate help-seeking behaviours among military personnel.

Conclusion and implications

Demographic and attitudinal differences were found among CAF help-seekers, non-help-seekers and no-need groups. Most notably, while the help-seekers reported more negative attitudes toward seeking mental health care for reasons that relate to anticipated stigma and negative career implications, the non-help-seekers reported more negative attitudes toward seeking mental health care that reflected a pessimism and distrust of mental health care professionals, and a preference to self-manage issues. These findings suggest more can be done to support those who seek help for mental health difficulties, given the anticipated stigma, which may act as a barrier to recovery. In addition, these findings indicate there is a distinct group of individuals requiring mental health supports, yet they are experiencing attitudinal barriers to care and, therefore, may be seeking options outside the traditional mental health care system. Innovative health care options, such as the use of mental health apps²⁵ may be an appealing alternative to traditional mental health care for non-help-seekers. These options may also address challenges to accessing care in geographically remote areas, or for those who perceive other structural barriers to care.

REFERENCES

1. Garber BG, Zamorski MA, Jetly CR. Mental health of Canadian Forces members while on deployment to Afghanistan. *Can J Psychiatry*. 2012;57(12):736–44. <https://doi.org/10.1177/070674371205701205>. Medline:23228232
2. Sareen J, Cox BJ, Afifi TO, et al. Combat and peace-keeping operations in relation to prevalence of mental disorders and perceived need for mental health care:

- findings from a large representative sample of military personnel. *Arch Gen Psychiatry*. 2007;64(7):843–52. <https://doi.org/10.1001/archpsyc.64.7.843>. Medline:17606818
3. Boulous D, Zamorski MA. Deployment-related mental disorders among Canadian Forces personnel deployed in support of the mission in Afghanistan, 2001–2008. *Cmaj*. 2013;185(11):E545–52. <https://doi.org/10.1503/cmaj.122120>. Medline:23820441
4. National Defence and Canadian Forces Ombudsman. On the homefront: assessing the wellbeing of Canada's military families in the new millennium. In: Forces NDaC, editor. Ottawa (ON): Office of the Ombudsman; 2013.
5. Pearson C, Zamorski MA, Janz T. Mental health of the Canadian Armed Forces. Statistics Canada Catalogue no. 82-624-X. Ottawa (ON): Ministry of Industry, Statistics Canada; 2014. 10 p.
6. American Psychiatric Association. Diagnostic and statistical manual of mental disorders (DSM-5). 5th ed. Washington (DC): American Psychiatric Association; 2013.
7. Thériault F, Gabler K, Naicker K. Health and Lifestyle Information Survey of Canadian Forces Personnel 2013/2014-Regular Force Report. Department of National Defence; 2016.
8. Britt TW. The stigma of psychological problems in a work environment: evidence from the screening of service members returning from Bosnia. *J Appl Soc Psychol*. 2000;30(8):1599–618. <https://doi.org/10.1111/j.1559-1816.2000.tb02457.x>.
9. Sharp ML, Fear NT, Rona RJ, et al. Stigma as a barrier to seeking health care among military personnel with mental health problems. *Epidemiol Rev*. 2015;37(1):144–62. <https://doi.org/10.1093/epirev/mxu012>. Medline:25595168
10. Seidman AJ, Wade NG, Vogel DL, et al. The impact of stigma on behavioral health care utilization among active duty service members. *Mil Psychol*. 2019; 31(1):11–17. <https://doi.org/10.1080/08995605.2018.1522927>.
11. Phinney B, Zamorski M, Fikretoglu D. Comparison of past-year mental health services use in Canadian Army, Navy, and Air Force personnel. *J Mil Veteran Fam Health*. 2019;5(1):2–12. <https://doi.org/10.3138/jmvfh.2017-0041>.
12. Zamorski MA, Bennett RE, Boulous D, et al. The 2013 Canadian Forces mental health survey: background and methods. *Can J Psychiatry*. 2016;61(1_suppl):10S–25S. <https://doi.org/10.1177/0706743716632731>. Medline:27270738
13. Keyes CL. Brief description of the mental health continuum short form (MHC-SF) [Internet]. 2009 [cited 2020 Mar 13]. [2 pages]. Available from: <https://www.aacu.org/sites/default/files/MHC-SFEnglish.pdf>.
14. Kessler RC, Andrews G, Colpe LJ, et al. Short screening scales to monitor population prevalences and trends in non-specific psychological distress. *Psychol Med*. 2002;32(6):959–76. <https://doi.org/10.1017/s0033291702006074>. Medline:12214795
15. Kessler RC, Üstün BB. The World Mental Health (WMH) Survey initiative version of the World Health Organization (WHO) Composite International Diagnostic Interview (CIDI). *Int J Methods Psychiatr Res*. 2004;13(2):93–121. <https://doi.org/10.1002/mpr.168>. Medline:15297906
16. Segal DL. Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR). In: Weiner IB, Craighead WE, editors. The Corsini encyclopedia of psychology. Hoboken, NJ: John Wiley & Sons; 2010.
17. Algina J, Keselman HJ, Penfield RD. An alternative to Cohen's standardized mean difference effect size: a robust parameter and confidence interval in the two independent groups case. *Psychol Methods*. 2005;10(3):317–28. <https://doi.org/10.1037/1082-989x.10.3.317>. Medline:16221031
18. Cumming G, Finch S. A primer on the understanding, use, and calculation of confidence intervals that are based on central and noncentral distributions. *Educ Psychol Meas*. 2001;61(4):532–74. <https://doi.org/10.1177/0013164401614002>.
19. Kelley K. The effects of nonnormal distributions on confidence intervals around the standardized mean difference: bootstrap and parametric confidence intervals. *Educ Psychol Meas*. 2005;65(1):51–69. <https://doi.org/10.1177/0013164404264850>.
20. Tabachnick BG, Fidell LS. Using multivariate statistics. Boston (MA): Pearson Education Inc.; 2007.
21. Kim PY, Britt TW, Klocko RP, et al. Stigma, negative attitudes about treatment, and utilization of mental health care among soldiers. *Mil Psychol*. 2011;23(1): 65–81. <https://doi.org/10.1080/08995605.2011.534415>.
22. Sudom K, Zamorski MA, Garber B. Stigma and barriers to mental health care in deployed Canadian forces personnel. *Mil Psychol*. 2012;24(4):414–31. <https://doi.org/10.1080/08995605.2012.697368>.
23. Weeks M, Zamorski MA, Rusu C, et al. Mental illness-related stigma in Canadian military and civilian populations: a comparison using population health survey data. *Psychiatr Serv*. 2017;68(7):710–16. <https://doi.org/10.1176/appi.ps.201600398>. Medline:28245701
24. Newell CE, Rosenfeld P, Harris RN, et al. Reasons for nonresponse on U.S. Navy surveys: a closer look. *Mil Psychol*. 2004;16(4):265–76. https://doi.org/10.1207/s15327876mp1604_4.

25. Tam-Seto L, Wood VM, Linden B, et al. A scoping review of mental health mobile apps for use by the military community. *Mhealth*. 2018;4(57):1–9. <https://doi.org/10.21037/mhealth.2018.12.01>. Medline:30701175

AUTHOR INFORMATION

Valerie M. Wood, PhD, is a Program Associate in the Psychology Department at Queen's University. Her research has focused on the role of adult attachment in relationship conflict, and spousal adjustment to military deployments. More recently, she completed a Post-Doctoral Fellowship focused on leveraging AI capabilities to support the mental health of the military community.

Brooke Linden, PhD, MA, is a Post-Doctoral Research Fellow in the Health Services and Policy Research Institute at Queen's University. Her research interests revolve around issues related to mental health and stress, with expertise spanning program evaluation, scale development and psychometrics, and mixed methods research.

Linna Tam-Seto, PhD, MScOT(Post-Professional), BScOT, BA, OTReg(Ont.), is a Post-Doctoral Research Fellow in the Health Services and Policy Research Institute at Queen's University. Her research interests include understanding the role of culture on the health experiences of military community members, and the impact of military life during service and post-release on the health and well-being of Canadian military and Veteran families.

Heather Stuart, PhD, is a Professor in the Departments of Public Health Sciences, Psychiatry, and the School of Rehabilitation Therapy at Queen's University. She holds the Bell Canada Mental Health and Anti-stigma Research Chair, is a Fellow of the Royal Society of Canada, and a recipient of the Order of Canada.

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