

# BMJ Open Differences between the Canadian military's Regular and Reserve Forces in perceived need for care, mental health services use and perceived sufficiency of care: a cross-sectional survey

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## ABSTRACT

**Objective** The primary objective was to explore differences in perceived need for care (PNC), mental health services use (MHSU) and perceived sufficiency of care (PSC) between Canadian Armed Forces Regular Force (RegF) and Reserve Force (ResF) personnel with an objective need for mental health services.

**Design** Data came from the 2013 Canadian Armed Forces Mental Health Survey, a cross-sectional survey of serving personnel (n=72 629). Analyses were among those with an Afghanistan deployment and an identified mental disorder (population n=6160; sampled n=868). Logistic regression compared PNC, MHSU and PSC between RegF and ResF. Covariate-adjusted marginal prevalence difference estimates were computed.

**Primary outcome measure** The primary outcomes were PNC, MHSU and PSC. Each had three service categories, including an aggregate 'any' of the three: (1) information about problems, treatments or services; (2) medication and (3) counselling.

**Results** ResF had an 10.5% (95% CI -16.7% to -4.4%) lower perceived need for medication services but PNC differences were not significant for other service categories. MHSU tended to be lower for ResF; 9.1% (95% CI -15.5% to -2.6%) lower for medication, 5.4% (95% CI -11.5% to 0.7%) lower, with marginal significance, for counselling and 11.3% (95% CI -17.3% to -5.2%) lower for the 'any' service category. Additionally, ResF tended to have a lower fully met need for care; 13.4% (95% CI -22.1% to -4.6%) lower for information, 15.3% (95% CI -22.9% to -7.6%) lower for counselling and 14.6% (95% CI -22.4% to -6.8%) lower for the 'any' service category.

**Conclusions** Our findings suggest MHSU and PSC differences between Canadian RegF and ResF personnel that are not fully accounted for by PNC differences. Deficits in ResF members' perceptions of the sufficiency of information services and counselling services suggest perceived, or experienced, barriers to care beyond any PNC barriers. Additional research assessing barriers to mental healthcare is warranted.

## INTRODUCTION

Military personnel on difficult deployments may develop mental health problems and

## Strengths and limitations of this study

- The survey sample was moderately large with a high response rate and thus, allows for more detailed and representative analyses.
- The study is a cross-sectional survey and subject to the biases associated with this study design.
- The study was implemented among currently serving personnel and thus, excludes those who had already released from service; an unknown fraction may have released because of mental health problems but such individuals are likely to be similarly distributed between both military components.

may need mental health services. However, among individuals with a need, there are many factors that influence their decision or ability to seek such care.<sup>1</sup> Research suggests that a majority of those with a mental disorder eventually seek care within military populations<sup>2 3</sup> but delays, which can be lengthy, do occur.

The Canadian Armed Forces (CAF) and similarly other military organisations have implemented a number of programmes (eg, a resilience and mental health training programme<sup>4</sup> and postdeployment mental health screening<sup>4</sup>) to help its members recognise when they have a problem and need services, and to seek care sooner.<sup>5-7</sup> While these programmes have been implemented throughout the CAF, recent findings suggest that Reserve Force (ResF) personnel with an identified need for care may be less likely to seek mental health services relative to Regular Force (RegF) members<sup>8</sup>: In the most recent nationally representative survey of CAF personnel, a higher proportion of ResF members with an identified past-year mental disorder reported that they had no mental health services use (MHSU) and similarly, a

higher proportion indicated that they needed help for a mental health problem but did not receive it.<sup>8</sup> We could not locate much research to indicate whether this may be a concern among other military organisations; however, researchers in the UK have reported no difference in MHSU between regular and reserve personnel with a mental health problem.<sup>9</sup>

There are differences between the CAF components that may influence their perceived need for care (PNC), MHSU and perceived sufficiency of care (PSC). RegF personnel usually access mental health services from the CAF healthcare system at no cost. ResF personnel, on the other hand, usually access mental health services through the civilian healthcare system except during periods of active service, when they become eligible for CAF mental health services. However, some ResF members may be less likely to access the no-cost military mental health services for reasons that may be related to a real or perceived ineligibility for CAF services or a preference. Additionally, mental health services within the civilian system have some associated cost and ResF personnel who decide to access civilian mental health services may delay help seeking due to cost considerations. Moreover, the CAF mental health system is arguably better resourced and optimised to aid military personnel with mental health problems when compared with the Canadian civilian system.<sup>10</sup> As such, ResF personnel, who receive mental healthcare from the civilian system, may thus be less than optimally serviced, influencing their PSC. There is indeed some evidence, although from small studies with small, select samples, that some ResF personnel may be encountering barriers that either limit their access to CAF mental healthcare or that lead them to choose not to use it.<sup>11</sup>

Barriers to timely treatment seeking in military populations have been extensively studied in Canada and elsewhere.<sup>12–14</sup> These can include a failure to perceive a need for care, stigma, negative beliefs about mental disorders and associated treatments, a concern over potential negative career consequences, and systemic issues such as lengthy wait times and poor accessibility.<sup>15,16</sup> Prior research among CAF personnel with a past-year mental disorder identified a failure to perceive a need for care as the most prevalent barrier; reported by 84%–97% of participants depending on the type of care considered.<sup>17</sup> Other countries have similarly identified perceived need<sup>18,19</sup> as both a predictor and its absence, a barrier to MHSU. In addition to barriers, there are a number of facilitators to mental health care seeking, features that may directly have a positive influence on barriers to care, such as the presence of a supportive organisational climate, social support and educational programmes that provide information on mental health and promote treatment seeking.<sup>16</sup>

Individuals' perception of barriers and facilitators to care has been shown to vary with differing sociodemographic and clinical characteristics,<sup>14,20–23</sup> as well as with past experiences such as child abuse.<sup>24</sup> Such gradations in perceiving barriers to care may be mediated through variations in psychological distress levels that result from

variations in individuals' clinical presentation and past experiences and additionally, past experiences can be a proxy for prior positive or negative encounters with mental health services. Deployment experiences and associated deployment characteristics have the potential to also influence individuals' perception of barriers to care,<sup>25</sup> and importantly, these are likely to differ between RegF and ResF personnel, yet there has been limited research in this area. Some researchers have found that the perception of barriers to care varies around the deployment cycle, elevated during and for a period after deployment, and additionally, higher levels of perceived barriers have also been found to be associated with combat exposure.<sup>26,27</sup> Thus, a consideration of deployment experiences along with other factors that might influence a decision to seek care is warranted.

The primary objective of this study was to explore differences in PNC, MHSU and PSC between RegF and ResF personnel when they had a need for mental health services, as measured by the presence of one or more of six identified past-year mental disorders. We hypothesise that ResF personnel will have a lower PNC, MHSU and PSC relative to their RegF counterparts and we attempt to identify factors that influence these outcomes.

## METHODS

### Study population and sampling

Data came from a cross-sectional population-based survey of active service CAF personnel (2013 Canadian Forces Mental Health Survey),<sup>10</sup> and were collected between April and August of 2013 by Statistics Canada, Canada's national statistical agency. The sampling frame, created in September of 2012, consisted of CAF personnel that administrative data indicated were in active service ( $n=72\,629$ ); and of these, 35\,311 (4857 ResF and 30\,454 RegF personnel) had an Afghanistan-related deployment. A stratified sampling approach was implemented with strata that were based on whether individuals had an Afghanistan-related deployment, military rank (junior non-commissioned member (JNCM), senior non-commissioned member (SNCM) or officer) and component (ResF or RegF). However, sampling among ResF personnel was restricted to those with a prior Afghanistan-related deployment in order to optimise overall survey objectives and as such, for comparability only RegF personnel with an Afghanistan deployment were additionally used in this analysis. The resulting sample contained 1469 (response rate: 79%) ResF and 3385 (response rate: 80%) RegF participants with an Afghanistan deployment. The original sample size for this survey was chosen by Statistics Canada such that a past-year post-traumatic stress disorder (PTSD) prevalence could be estimated with a 0.7% margin of error. The analyses in this paper were restricted to participants with an Afghanistan deployment that had at least one of six measured past-year mental disorders, that is, all individuals in the analyses had a mental disorder. The study aimed to investigate

the measured outcomes among individuals with a need for mental health services and the presence of an identified mental disorder was used as a proxy for this need. All participants provided their informed consent before being interviewed and all aspects of the data collection and its access underwent ethical and privacy review by the relevant bodies within Statistics Canada. Sampling weights were provided by Statistics Canada and these permitted the generation of statistics that were representative of the population. Further details on this survey are available elsewhere.<sup>10</sup>

### Outcome variables

#### *Mental health services use*

Survey participants were asked about their MHSU, specifically, whether they received 'help for problems with emotions, mental health or use of alcohol or drugs' in the past 12 months within four service categories: (1) information about mental health problems, its treatments or available services; (2) medication (ie, prescription medication help) or (3) counselling, therapy or help for problems with personal relationships and (4) 'other' types of help. The 'other' category had very few affirmative responses and was not assessed. Additionally, we created an 'any services' category by collapsing across the first three service types.

#### PNC and PSC

The PNC questionnaire,<sup>28</sup> designed for the Australian National Survey of Mental Health and Well-being, was used to assess participants' perceptions of their need for care and its sufficiency among those who received or perceived a need for such care. This questionnaire queried respondents on whether they received or perceived a need for mental health services in the past 12 months within the same service categories as was used for the MHSU outcome. Response options included: (1) No need: did not receive help and felt no need for it; (2) Need fully met: received help and felt that it was sufficient; (3) Need partially met: received help but not as much as needed and (4) Need not met: perceived a need but did not receive any. Using these response options, PNC was quantified as any indicated need versus no PNC while PSC was quantified in two ways, as need fully met versus not fully met (ie, not met or partially met) and need at least partially met versus not met among those with a PNC.

### Potential confounders and covariates of interest

#### *Mental disorders and health-related information*

The survey assessed past-year major depressive episode (MDE), PTSD, generalised anxiety disorder (GAD), panic disorder (PD), alcohol abuse and alcohol dependence using WHO's Composite International Diagnostic Interview (CIDI), V.3.0<sup>29 30</sup>; the CIDI uses the Diagnostic and Statistical Manual of Mental Disorders IV criteria for these disorders. The identified mental disorders were categorised into nine groups: five single disorder categories of PTSD, GAD, MDE, PD, or either alcohol abuse or

dependence, three PTSD comorbid categories of both PTSD and MDE, PTSD and a second (not MDE) disorder or PTSD, MDE and another disorder, and a single comorbid category that excludes PTSD.

Past-year suicidal ideation was determined based on whether respondents indicated having thought about committing suicide in the past 12 months.

The K-10, a 10-item instrument that quantifies psychological distress during the previous month, was assessed.<sup>31</sup> Respondents were asked, 'During the past month, about how often did you feel: (1) tired out for no good reason; (2) nervous; (3) so nervous that nothing could calm you down; (4) hopeless; (5) restless or fidgety; (6) so restless you could not sit still; (7) sad or depressed; (8) so depressed that nothing could cheer you up; (9) everything was an effort and (10) worthless.' Scores were determined based on a summation of item responses that indicate symptom frequency: 'all of the time' (score 4), 'most of the time' (score 3), 'some of the time' (score 2), 'a little of the time' (score 1) and 'none of the time' (score 0). Summed scores can range from 0 to 40 and, based on previous survey applications,<sup>32</sup> these were categorised into four distress severity groupings:  $\leq 9$  (no distress), 10–14 (mild), 15–19 (moderate) and  $\geq 20$  (severe).

Self-rated mental health and self-rated physical health were each assessed at survey interview date. While respondents could indicate excellent, very good, good, fair or poor, these were dichotomised as poor or fair versus good, very good or excellent.

#### *Military and sociodemographic information*

The primary covariate of interest was component (ie, RegF and ResF) and this information was confirmed during survey implementation. The following sociodemographic and military characteristics were also available: sex, age category (17–24, 25–34, 35–44 and 45–60 years), military rank (JNCM, SNCM and officer), service (Army, Navy or Air Forces), marital status, highest education level attained, racial background (white, non-white or multiple), household income and indication of having difficulty meeting basic expenses. Variable categorisations were either based on previous work with this data<sup>33</sup> or its distribution.

#### *Lifetime potentially traumatic experiences*

The CIDI<sup>29 30</sup> module on PTSD inquired about lifetime exposure to individual potentially traumatic experiences (LTE) that included: combat experience, relief worker in a war zone, civilian in a war zone, civilian in region of terror, refugee, kidnapped, toxic chemical exposure, automobile accident, life-threatening accident, natural disaster, man-made disaster, life-threatening illness, beaten as a child by caregiver, beaten by spouse/romantic partner, beaten by other, mugged/threatened with a weapon, sexual assault, unwanted sexual touching, stalked, unexpected death of a loved one, child's serious illness, traumatic event to love one, witnessed intimate violence, witnessed death or dead body, accidentally



caused serious injury, purposely injured/killed other, saw atrocities and 'other' (non-specific). The refugee LTE had very few affirmative responses (<1%) and it was grouped with the 'other' traumatic experiences category.

#### *Child abuse*

Physical abuse, sexual abuse and exposure to intimate partner violence experienced before the age of 16 were assessed using items from the Childhood Experiences of Violence Questionnaire, a valid and reliable tool developed for assessing youth victimisation.<sup>34</sup> Information was collected from all respondents aged 18 years or older and frequency thresholds were imposed, as per the questionnaire guidelines,<sup>34</sup> to identify the presence of these three types of child abuse experiences.

#### *Mental health training*

Participants were asked whether they received mental health or resilience training over the past 5 years in preparation for a CAF deployment and/or at the end of a CAF deployment. The CAF's resilience and mental health training programme was implemented in January 2008 with a focus on educating members on mental illness awareness and stigma reduction. In September 2009, this programme was further integrated across the deployment cycle.<sup>4</sup> Additionally, in-depth postdeployment mental health screening was introduced in 2002 and became fully implemented within the CAF in August 2004.<sup>4</sup>

#### *Deployment-related characteristics and experiences*

Participants were asked whether they ever had a previous deployment outside of North America, other than Afghanistan-related ones. Additionally, participants indicated the total number of months they spent away from home over the past 3 years because of military duties which, based on the data's distribution, was categorised as: none, ≤6, 7–12, 13–24 and 25–36 months.

Administrative data for participants' Afghanistan-related deployment history were available and linked deterministically with the sample file prior to survey implementation. The data were used to calculate the interval (days) from most recent deployment return to interview date, (<1460 (<4 years), 1460–1824 (4 years), 1825–2189 (5 years), 2190–2554 (6 years) and ≥2555 (≥7 years)), number of deployments (1 or ≥2), deployment location (Kabul or elsewhere in Afghanistan, Kandahar province, multiple locations or other Afghanistan related) and duration of all Afghanistan-related deployments (≤120, 121–240, 241–360 or ≥361 days). All variable categorisations were determined based on the data's distribution.

Eight deployment-related experiences were assessed: (1) 'ever known someone who was seriously injured or killed'; (2) 'ever found yourself in a threatening situation where you were unable to respond because of the rules of engagement'; (3) 'ever been injured'; (4) 'ever seen ill or injured women or children who you were unable to help'; (5) 'ever received incoming artillery, rocket or mortar fire'; (6) 'ever felt responsible for the death of a

Canadian or ally personnel'; (7) 'ever had a close call, for example shot or hit but protective gear saved you' and (8) 'ever had difficulty distinguishing between combatants and non-combatants'. These deployment experience items were adapted from the Combat Experiences Scale that was developed by the Walter Reed Army Institute for Research, following an assessment of their applicability among CAF personnel.<sup>35</sup>

#### **Statistical analysis**

All analyses were among participants with an Afghanistan deployment that had at least one of six measured past-year mental disorders. The data were predominantly analysed using Stata for Windows, release V.13; however, frequencies and logistic regression variable selection was implemented using SAS for Windows, V.9.3. We applied the final survey sample weights provided by Statistics Canada to generate population representative descriptive and regression statistics and the Taylor Series Linearization method<sup>36</sup> was used to generate SE estimates. Listwise deletion was used for missing values, resulting in the exclusion of 0.1%–3.0% of respondents (0.1%–2.9% for ResF; 0.1%–3.3% for RegF).

Wald  $X^2$  tests assessed associations between component (RegF and ResF) and each variable. We additionally used a series of logistic regression models to assess the unadjusted and adjusted association of component with the PNC, MHSU and PSC outcomes; model 1 assessed the unadjusted association (expressed as an OR), model 2 assessed the association adjusted for military and socio-demographic variables, model 3 additionally adjusted for mental disorders and health-related variables, model 4 additionally adjusted for LTE and child abuse variables, implemented as propensity scores regressed on component (ie, ResF as outcome) and categorised into quartiles, model 5 additionally adjusted for predeployment and postdeployment mental health training, and model 6 additionally adjusted for deployment-related characteristics and experiences. Moreover, three of the LTE (ie, combat experience, relief worker in a war zone and saw atrocities) were determined via exploratory factor analysis to be highly associated with a deployment experience factor<sup>37</sup>; these were excluded from the model 4 assessment and assessed along with the other deployment-related experience variables in model 6.

This modelling approach had a specific purpose. Models 2–6 were used to assess for the incremental influence of the five variable groups (ie, military and sociodemographic, health-related, LTE and child abuse, predeployment and postdeployment mental health training and deployment-related variable groups) on the hypothesised association between military component and the outcomes. Each of these variable groups has been suggested to have an influence on the outcomes being assessed and this approach would, presumably, offer some suggestion as to how, and whether, each explains some of the observed unadjusted associations between military component and the outcomes. It would

also provide some indication as to whether subsequently included variable groups moderate this unadjusted association between component and outcome and whether variable groups included later mediate the influence of variable groups added earlier. Additionally, we used a conservative variable reduction strategy within each of the five logistic regression models (models 2–6); variables were sequentially dropped if their covariate-adjusted Wald  $X^2$  p value was  $\geq 0.25$ , starting with the variable having the largest p value. Variables retained in a given model were not further assessed for exclusion in subsequent models. This variable-reduction strategy had a dual purpose. We wanted to assess a fairly large number of variables and still retain each variable group's identity but we wanted to ensure that we did not diminish the level of power to detect differences. As such, we chose to use propensity scores with one variable group and within the remaining variable groups we chose a conservative p value approach ( $p \geq 0.25$ ) to exclude the most non-significant variables.

Reporting unadjusted prevalence estimates for the outcomes by component are not optimal indicators as they reflect differences associated with each component and differences that are attributable to differing covariate profiles between components. Marginal standardisation approaches can produce estimates that are adjusted for the effect of differing covariate profiles on an outcome of interest and thus, produce clearer effect estimates. We used a marginal standardisation approach to estimate the study population proportion that, based on the final logistic regression model (model 6), would be expected to have each outcome had they had the exposure or characteristic of interest; this approach operates by statistically forcing the total population to have the exposure or characteristic of interest (eg, ResF or RegF) while other covariates retain their observed value.<sup>38</sup> Expected marginal prevalence differences (MPDs), here after referred to as prevalence differences, were computed for component (ResF vs RegF); a z-test assessed the MPD statistical significance with SEs computed using the delta method.<sup>38</sup> These MPDs provide estimates of the increase or decrease in outcome prevalence associated with the variable of interest and assumes that confounding has largely been adjusted for in the model; hence, these prevalence differences were only computed for the component (ResF vs RegF) covariate using the final variable-reduced model (ie, model 6).

### Patient and public involvement

CAF service members, patients and/or the public were not involved in developing the research question, the study design or in the conduct of the study. The findings from this study will be shared with CAF service members and other interested stakeholders through targeted conference venues, CAF community newsletters or communities and other venues.

## RESULTS

### Study population characteristics

The prevalence of a mental disorder (ie, the 6 CIDI-measured disorders) among those with an Afghanistan deployment was similar between RegF and ResF, 18.9% and 19.3% respectively; these individuals with an identified disorder comprised the study population on whom the present analyses were conducted. The health-related characteristics as well as sociodemographic and other military-associated characteristics for these individuals with an identified disorder are shown in [table 1](#). A number of the characteristics, including the comorbid distribution of disorders, differed between components ([table 1](#)). ResF personnel were more likely to be male, younger, single, in the army service, in the lowest income category, in the higher education categories and in the better self-reported physical and mental health categories.

Almost all personnel in the study population had some LTE, 97.4% for RegF and >99.0% for ResF; however, four of the individual LTE and child abuse types were less common among ResF (online supplementary table 1). Six deployment-related characteristics and experiences differed significantly between components (online supplementary table 2). The cumulative time spent away from home for military duties over the past 3 years (prior to survey participation) was lower among ResF while having multiple Afghanistan deployments and other non-Afghanistan deployments were both less common. Additionally, the cumulative duration of Afghanistan deployments and their location both differed between components. Only one deployment experience, 'ever received incoming artillery, rocket or mortar fire', was more common among ResF; however, ResF personnel tended to have more combat experience.

PNC for the medication and counselling service types was significantly lower in ResF compared with RegF ([table 2](#)). Additionally, each MHSU type was significantly lower in ResF. Among those with any MHSU, fewer ResF members indicated receiving as much help as needed (69.6% as opposed to 78.4% among RegF).

Among those with a PNC, the reported PSC (ie, need fully met or at least partially met) was lower among ResF for the 'any' service category and specifically, for information and counselling service types ([table 2](#)); however, a very low fraction of participants reported that their need for medication services was not met (ie, <0.5% for ResF and 4.4% for RegF), precluding some PSC comparisons on this service type.

### Logistic regression results

#### Perceived need for care

[Table 3](#) presents the logistic regression analyses that assessed the association of component (ResF versus RegF) and PNC for the three service types (ie, information, medication and counselling). With the exception of the perceived need for prescription medication services, the unadjusted component and PNC associations largely changed from being significant to non-significant after

**Table 1** Military and sociodemographic variables among Regular and Reserve Force members with an Afghanistan deployment and an identified mental disorder

Characteristic	Regular Force personnel		Reserve Force personnel		Wald X <sup>2</sup> p value
	Sample n=603 Weighted n=5320		Sample n=265 Weighted n=840		
	%	95% CI	%	95% CI	
<b>Past-year mental health problems</b>					
Comorbid disorders*					<0.001
MDE only	20.4	17.3 to 23.4	19.5	16.0 to 23.1	
PTSD only	12.8	10.3 to 15.4	9.8	7.0 to 12.6	
PD only	7.9	5.8 to 10.0	7.3	5.1 to 9.5	
GAD only	7.2	5.3 to 9.0	4.9	3.0 to 6.8	
Alcohol abuse only	6	4.3 to 7.8	14.6	11.5 to 17.8	
Alcohol dependence only	3.4	2.0 to 4.8	7.3	5.1 to 9.5	
PTSD and MDE	5.7	4.0 to 7.4	4.9	2.7 to 7.0	
PTSD and other	10.6	8.2 to 13.0	9.8	7.0 to 12.5	
PTSD, MDE, other	12.8	10.3 to 15.3	9.8	7.0 to 12.5	
Mix-no PTSD	13.2	10.7 to 15.7	12.2	9.2 to 15.2	
<b>Individual mental health problems</b>					
Any anxiety*†	69.2	65.7 to 72.7	60	55.5 to 64.5	<0.001
Any MDE‡	50.8	47.0 to 54.5	45.2	40.7 to 49.8	0.080
Any PTSD‡	42.5	38.8 to 46.3	37.5	33.0 to 42.0	0.063
Any PD‡	27.5	24.0 to 30.9	22.5	18.8 to 26.2	0.055
Any GAD*	31.6	28.0 to 35.1	22	18.2 to 25.7	<0.001
Any alcohol abuse disorder*	10.5	8.2 to 12.9	19.5	15.9 to 23.2	<0.001
Any alcohol dependence*	7.9	5.9 to 9.9	12.2	9.1 to 15.3	0.011
Any AUD*	18.4	15.5 to 21.3	33.3	29.1 to 37.6	<0.001
Any suicidal ideation	19.9	16.9 to 23.0	22	18.1 to 25.8	0.301
<b>No of mental health problems</b>					
1	57.9	54.2 to 61.6	61.9	57.5 to 66.3	0.146
≥2	42.1	38.4 to 45.8	38.1	33.7 to 42.5	
<b>K-10 Distress Scale*</b>					
≤9	27.4	24.1 to 30.8	34.1	29.8 to 38.4	0.004
10–14	28.9	25.5 to 32.4	22	18.2 to 25.7	
15–19	19.2	16.2 to 22.1	24.4	20.5 to 28.3	
≥20	24.4	21.2 to 27.7	19.5	15.9 to 23.2	
<b>Self-rated physical health</b>					
Excellent, very good or good	72.3	68.9 to 75.7	81	77.5 to 84.4	<0.001
Fair or poor	27.7	24.3 to 31.1	19	15.6 to 22.5	
<b>Self-rated mental health</b>					
Excellent, very good or good	43.2	39.5 to 47.0	52.4	47.8 to 56.9	0.002
Fair or poor	56.8	53.0 to 60.5	47.6	43.1 to 52.2	
<b>Military and sociodemographic characteristics</b>					
<b>Sex*</b>					
Male	84.2	81.4 to 87.0	90.2	87.5 to 93.0	0.007
Female	15.8	13.0 to 18.6	9.8	7.0 to 12.5	
<b>Age*</b>					
17–24	3.7	2.1 to 5.4	12.2	9.1 to 15.3	<0.001

Continued

Table 1 Continued

Characteristic	Regular Force personnel		Reserve Force personnel		Wald X <sup>2</sup> p value
	Sample n=603 Weighted n=5320		Sample n=265 Weighted n=840		
	%	95% CI	%	95% CI	
25–34	35.2	31.8 to 38.6	46.3	41.9 to 50.8	
35–44	41.2	37.6 to 44.8	19.5	16.0 to 23.0	
45–60	19.9	17.1 to 22.6	22	18.6 to 25.3	
Rank*					<0.001
JNCM	55.6	55.0 to 56.3	58.5	58.0 to 59.1	
SNCM	33.1	32.5 to 33.7	26.8	26.4 to 27.3	
Officer	11.3	10.9 to 11.6	14.6	14.2 to 15.0	
Service*					<0.001
Navy	11.3	8.9 to 13.6	2.4	0.9 to 3.9	
Army	71.1	67.7 to 74.4	88.1	85.2 to 91.0	
Air	17.7	14.8 to 20.5	9.5	7.0 to 12.1	
Marital status*					<0.001
Married/common	66.5	63.0 to 70.1	51.2	46.8 to 55.6	
Single	20.3	17.3 to 23.3	39	34.7 to 43.4	
Widowed, separated or divorced	13.2	10.6 to 15.7	9.8	6.9 to 12.6	
Education*					<0.001
<Secondary school grad	6.4	4.5 to 8.3	2.4	1.0 to 3.9	
Secondary school grad	34.7	31.2 to 38.3	22	18.1 to 25.8	
Some postsecondary	9.1	6.9 to 11.2	12.2	9.3 to 15.1	
Postsecondary grad	49.8	46.2 to 53.5	63.4	59.1 to 67.7	
Racial background‡					0.085
White	90.9	88.8 to 93.1	85.7	82.7 to 88.7	
Non-white	5.3	3.6 to 7.0	9.5	6.9 to 12.1	
Multiple	3.8	2.4 to 5.2	4.8	3.1 to 6.5	
Household income*					<0.001
<50K	1.1	0.3 to 1.9	19	15.6 to 22.5	
50–69K	20.7	17.7 to 23.7	14.3	11.0 to 17.5	
70–89K	24.4	21.3 to 27.6	16.7	13.3 to 20.1	
≥90K	53.8	50.1 to 57.4	50	45.7 to 54.3	
Income difficulty					0.177
Yes	12.5	9.9 to 15.0	14.6	11.3 to 18.0	
No	87.5	85.0 to 90.1	85.4	82.0 to 88.7	
Mental health training (in past 5 years)					
Predeployment	58.3	54.7 to 62.0	63.4	59.0 to 67.8	0.112
Postdeployment‡	66	62.5 to 69.5	70.7	66.6 to 74.9	0.040

\*Regular and reserve force differ significantly (Wald X<sup>2</sup> p≤0.05).

†Any of the following: GAD, PD or PTSD.

‡Regular and Reserve Force differ with marginal significance (Wald X<sup>2</sup> 0.05<p≤0.10).

AUD, alcohol use disorder (either alcohol abuse disorder or alcohol dependence disorder); GAD, generalised anxiety disorder; JNCM, junior non-commissioned member; MDE, major depressive episode; PD, panic disorder; PTSD, post-traumatic stress disorder; SNCM, senior non-commissioned member.

**Table 2** MHSU among Regular and Reserve Force members with an Afghanistan deployment and an identified mental disorder

	Regular Force personnel			Reserve Force personnel			Wald X <sup>2</sup> p value
	Sample n=603 Weighted n=5320			Sample n=265 Weighted n=840			
	N	%	95% CI	n	%	95% CI	
<b>MHSU</b>							
MHSU—information receipt	2180	41.1	37.4 to 44.9	260	31.7	27.5 to 35.9	0.001
MHSU—medication receipt	2620	49.4	45.7 to 53.2	280	33.3	29.0 to 37.6	<0.001
MHSU—counselling receipt	3320	62.9	59.2 to 66.5	420	50	45.4 to 54.6	<0.001
MHSU—any information/medication/ counselling receipt	3860	72.8	69.5 to 76.2	480	57.1	52.6 to 61.6	<0.001
Among those with any MHSU							
MHSU—information receipt	2180	56.5	52.1 to 60.9	260	54.2	48.2 to 60.2	0.775
MHSU—medication receipt	2620	67.9	63.7 to 72.0	280	58.3	52.4 to 64.3	0.005
MHSU—counselling receipt	3320	86.5	83.4 to 89.5	420	87.5	83.5 to 91.5	0.76
Received as much help as needed							
No	820	21.6	17.9 to 25.2	140	30.4	24.8 to 36.0	0.006
Yes	2980	78.4	74.8 to 82.1	320	69.6	64.0 to 75.2	
<b>PNC</b>							
Information							
No need	2760	52.9	49.1 to 56.7	480	58.5	54.0 to 63.1	0.092
Need	2460	47.1	43.3 to 50.9	340	41.5	36.9 to 46.0	
Medication							
No need	2480	47.7	43.9 to 51.5	540	65.9	61.5 to 70.2	<0.001
Need	2720	52.3	48.5 to 56.1	280	34.1	29.8 to 38.5	
Counselling							
No need	1380	26.5	23.2 to 29.9	300	36.6	32.2 to 41.0	0.001
Need	3820	73.5	70.1 to 76.8	520	63.4	59.0 to 67.8	
Any of the three service types							
No need	1020	19.8	16.7 to 22.8	240	29.3	25.1 to 33.4	<0.001
Need	4140	80.2	77.2 to 83.3	580	70.7	66.6 to 74.9	
<b>PSC</b>							
Among those with an information PNC							
Need not met or partially met	480	19.5	15.1 to 23.9	120	35.3	28.5 to 42.1	<0.001
Need met	1980	80.5	76.1 to 84.9	220	64.7	57.9 to 71.5	
Need met or partially met	2140	87	83.3 to 90.7	260	76.5	70.4 to 82.5	0.004
Need not met	320	13	9.3 to 16.7	80	23.5	17.5 to 29.6	
Among those with a Medication PNC							
Need not met or partially met	260	9.6	6.5 to 12.6	40	14.3	9.4 to 19.1	0.584
Need met	2460	90.4	87.4 to 93.5	240	85.7	80.9 to 90.6	
Need met or partially met	2580	95.6	93.3 to 97.8				0.178
Need not met	120	4.4	2.2 to 6.7				
Among those with a counselling PNC							
Need not met or partially met	1180	30.7	26.7 to 34.8	220	42.3	36.6 to 48.0	0.001
Need met	2660	69.3	65.2 to 73.3	300	57.7	52.0 to 63.4	
Need met or partially met	3280	85.4	82.3 to 88.5	420	77.8	73.0 to 82.5	0.021
Need not met	560	14.6	11.5 to 17.7	120	22.2	17.5 to 27.0	

Continued



Table 2 Continued

	Regular Force personnel			Reserve Force personnel			Wald X <sup>2</sup> p value
	Sample n=603 Weighted n=5320			Sample n=265 Weighted n=840			
	N	%	95% CI	n	%	95% CI	
Among those with a PNC for any of the three service types							
Need not met or partially met	1420	34.3	30.3 to 38.3	280	50	44.5 to 55.5	<0.001
Need met	2720	65.7	61.7 to 69.7	280	50	44.5 to 55.5	
Need met or partially met	3740	90.3	87.9 to 92.8	460	82.1	77.8 to 86.5	<0.001
Need not met	400	9.7	7.2 to 12.1	100	17.9	13.5 to 22.2	

MHSU, mental health services use; PNC, perceived need for care; PSC, perceived sufficiency of care.

the adjustment for military and sociodemographic differences. In the final variable-reduced models, the odds that personnel with an identified mental disorder had a perceived need for medication services was lower among ResF (adjusted OR (AOR) 0.57; 95% CI 0.41 to 0.80); no statistically significant component differences were identified for either the information or counselling service PNC. Several covariates had some association with the PNC outcomes in the final variable-reduced model (online supplementary table 3). Strong associations with PNC were identified for the military and sociodemographic

covariates age and sex, and some association was noted for the marital status, racial background and service type covariate. Almost all of the health-related covariates measured had some association with PNC, as did the potentially traumatising experiences propensity score measure, predeployment mental health training and some of the deployment-related experiences covariates. Among the deployment characteristics, less time away in the past 3 years was associated with greater PNC and this is likely a result of greater perceived need hindering individuals' ability to spend time away. The directionality

Table 3 Logistic regression results and marginal prevalence estimates for perceived need for care among Regular and Reserve Force members with an Afghanistan deployment and an identified mental disorder

	Information	Medication	Counselling	Any
Perceived need for care (OR (95% CI))‡				
Model 1: unadjusted				
ResF versus RegF	0.81* (0.64 to 1.04)	0.48† (0.38 to 0.62)	0.65† (0.50 to 0.84)	0.60† (0.45 to 0.79)
Model 2: adding covariates for military and sociodemographic characteristics				
ResF versus RegF	1.04 (0.79 to 1.37)	0.60† (0.46 to 0.79)	0.8 (0.60 to 1.07)	0.78 (0.57 to 1.07)
Model 3: adding covariates for mental health				
ResF versus RegF	1.14 (0.85 to 1.54)	0.62† (0.46 to 0.84)	0.82 (0.59 to 1.15)	0.85 (0.58 to 1.23)
Model 4: adding covariates for LTE and child abuse (as propensity score)				
ResF versus RegF	1.16 (0.85 to 1.57)	0.63† (0.46 to 0.86)	0.87 (0.62 to 1.24)	0.87 (0.59 to 1.29)
Model 5: adding covariates for deployment associated mental health training				
ResF versus RegF	1.18 (0.86 to 1.60)	0.64† (0.47 to 0.87)	0.88 (0.61 to 1.25)	0.87 (0.59 to 1.30)
Model 6: adding covariates for deployment-related characteristics and experiences‡				
ResF versus RegF	1.11 (0.80 to 1.53)	0.57† (0.41 to 0.80)	0.83 (0.58 to 1.18)	0.78 (0.52 to 1.19)
Perceived need for care: marginal prevalence estimates from the final logistic regression model (% , (95% CI))				
RegF	46.6 (43.0 to 50.2)	51.2 (47.8 to 54.6)	72.5 (69.6 to 75.4)	79.5 (76.7 to 82.2)
ResF	48.7 (43.2 to 54.2)	40.7 (35.7 to 45.7)	69.6 (65.2 to 74.0)	76.3 (71.7 to 80.8)
Marginal prevalence difference	2.1 (-4.7 to 8.9)	-10.5† (-16.7 to -4.4)	-2.9 (-8.4 to 2.6)	-3.2 (-8.8 to 2.4)

\*Significant at 0.05<p≤0.10.

†Significant at p≤0.05.

‡A variable-reduction strategy was used with each logistic regression. Four outcomes were assessed and the retained covariates were not necessarily the same for each outcome.

LTE, lifetime exposure to potentially traumatic experiences; RegF, regular force; ResF, reserve force.

**Table 4** Logistic regression results and marginal prevalence estimates for mental health services use among Regular and Reserve Force members with an Afghanistan deployment and an identified mental disorders

	Information	Medication	Counselling	Any
Mental health service use (OR (95% CI))‡				
Model 1: unadjusted				
ResF versus RegF	0.67* (0.52 to 0.86)	0.50* (0.39 to 0.65)	0.59* (0.47 to 0.76)	0.51* (0.39 to 0.65)
Model 2: adding covariates for military and sociodemographic characteristics				
ResF versus RegF	0.85 (0.64 to 1.11)	0.60* (0.45 to 0.79)	0.72* (0.56 to 0.94)	0.57* (0.43 to 0.75)
Model 3: adding covariates for mental disorders and other health-related characteristics				
ResF versus RegF	0.88 (0.66 to 1.18)	0.65* (0.48 to 0.89)	0.75† (0.55 to 1.01)	0.59* (0.43 to 0.81)
Model 4: adding covariates for LTE and child abuse (as propensity score)				
ResF versus RegF	0.9 (0.67 to 1.23)	0.67* (0.48 to 0.92)	0.8 (0.58 to 1.09)	0.62* (0.44 to 0.87)
Model 5: adding covariates for deployment associated mental health training				
ResF versus RegF	0.91 (0.67 to 1.23)	0.67* (0.49 to 0.93)	0.8 (0.59 to 1.10)	0.62* (0.44 to 0.87)
Model 6: adding covariates for deployment-related characteristics and experiences‡				
ResF versus RegF	0.83 (0.61 to 1.15)	0.62* (0.44 to 0.87)	0.74† (0.53 to 1.03)	0.50* (0.35 to 0.73)
Mental health services use: marginal prevalence estimates from the final logistic regression model (% , (95% CI))				
RegF	40.7 (37.2 to 44.2)	48.4 (45.0 to 51.8)	62.1 (58.9 to 65.4)	72.6 (69.6 to 75.6)
ResF	37 (31.7 to 42.2)	39.3 (34.2 to 44.5)	56.7 (51.7 to 61.6)	61.3 (56.3 to 66.3)
Marginal prevalence difference	-3.7 (-10.2 to 2.8)	-9.1* (-15.5 to -2.6)	-5.4† (-11.5 to 0.7)	-11.3* (-17.3 to -5.2)

\*Significant at  $p \leq 0.05$ .

†Significant at  $0.05 < P \leq 0.10$ .

‡A variable-reduction strategy was used with each logistic regression. Four outcomes were assessed and the retained covariates were not necessarily the same for each outcome.

LTE, lifetime exposure to potentially traumatic experiences; RegF, regular force; ResF, reserve force.

for the health-related covariates' associations with PNC suggest that they are disorder severity or distress driven. Additionally, the direction of the association of the potentially traumatising experiences propensity score measure with PNC suggests that individuals with such experiences may have a deficit in perceiving a need for care.

Prevalence difference estimates for the influence of component on PNC are presented in table 3. ResF personnel had a statistically significant 10.5% lower PNC for medication services; the prevalence differences for the other service types were not statistically significant.

#### Mental health service use

Table 4 presents the logistic regression analyses that assessed the association of component (ResF versus RegF) with the three MHSU types (ie, information, medication and counselling). The unadjusted association of the component covariate with information services use changed from being significant to non-significant after the initial adjustment for military and sociodemographic differences. In contrast, the unadjusted association of component with the other MHSU types remained significant after fully adjusting for the influence of the other covariates. In the final variable-reduced models, ResF personnel with an identified mental disorder had a lower odds of receiving any of

the three service types relative to RegF personnel (AOR 0.50; 95% CI 0.35 to 0.73). Looking at each service type, ResF personnel's use of medication services was lower (AOR 0.62; 95% CI 0.44 to 0.87) and their use of counselling services was lower with marginal (ie,  $p \leq 0.10$ ) statistical significance (AOR 0.74; 95% CI 0.53 to 1.03). Several covariates had some association with the MHSU outcomes in the final variable-reduced model (online supplementary table 4). Other than the covariates for mental disorder casemix, self-rated mental health and some of the deployment-related experiences, there was little or no association between covariates and use of information services. However, there were some notable associations between covariates and the other MHSU outcomes in the final model. As expected, the strongest associations were for the health-related covariates and the direction of association suggests that it was disorder severity or distress driven. Similar to the PNC outcome findings, less time away in the past 3 years was associated with greater MHSU and the direction of the association for the potentially traumatising experiences propensity score measure indicates that individuals with these experiences have a low MHSU. Moreover, some covariates for the deployment-related experiences were also associated with MHSU.

Prevalence difference estimates for the influence of component on MHSU are presented in [table 4](#). ResF personnel had a statistically significant 11.3% lower MHSU for the ‘any’ service category and specifically, a 9.1% lower medication service use, as well as a marginally significant ( $p \leq 0.10$ ) 5.4% lower counselling service use.

### Perceived sufficiency of care

[Table 5](#) presents the logistic regression analyses that assessed the association of component (ResF versus RegF) and PSC for the three service types (ie, information, medication and counselling) among individuals with a PNC. PSC was assessed separately as ‘fully met need’ versus ‘at least partially met’ or not met and ‘at least partially met need’ versus not met. In the final variable-reduced models, ResF had a lower odds of perceiving their need for care to be fully met overall for the ‘any’ service category (AOR 0.51; 95% CI 0.35 to 0.73) and similarly, ResF had a lower odds of perceiving their need to be at least partially met (AOR 0.42; 95% CI 0.23 to 0.77) for the ‘any’ service category. Looking at each service type, ResF had a lower odds of perceiving their need for information services to be fully met (AOR 0.40; 95% CI 0.23 to 0.71) and as being at least partially met (AOR 0.38; 95% CI 0.21 to 0.68). Additionally, ResF had a lower odds of perceiving their need for counselling services to be fully met (AOR 0.46; 95% CI 0.31 to 0.68) but ResF and RegF had a comparable perception of this counselling services need being at least partially met. Several covariates had some association with the PSC outcomes in the final variable-reduced model (online supplementary table 5). There were very few consistent patterns of significance among the associations between the covariates and the five different PSC outcomes assessed. Generally, a few military and socio-demographic covariates (eg, age, marital status, racial background, income and service type), a few health-related covariates (eg, disorder casemix, distress level and self-rated health), postdeployment mental health training and some deployment-related characteristics and experiences had a strong association with the PSC outcomes. For deployment-related characteristics and experiences, some experiences were associated with a greater odds of a PSC and others associated with a lower odds, perhaps reflecting insufficient handling of some experiences through the consulted services. Additionally, as with the PNC and MHSU outcomes, greater time away in the past 3 years tended to be associated with a lower PSC, perhaps associated with being away from a preferred point of care.

Prevalence difference estimates for the influence of component on PSC are presented in [table 5](#). ResF members had a 13.5%, 15.3% and 14.6% lower fully met need for information services, counselling services and overall, for ‘any’ service type, respectively. When assessing an at least partially met PNC, prevalence differences were indicated to be 12.3% lower for information and 7.9%

lower for any of the three service types among ResF relative to RegF members.

## DISCUSSION

### Key findings

Among CAF personnel with an Afghanistan-related deployment and an objective need for mental health services, we found a number of differences between components in their PNC, MHSU and PSC and, generally, less favourable outcomes were found for ResF. After adjusting for covariates, PNC remained significantly lower in ResF for medication services only; the covariate-adjusted prevalence difference estimates indicated that ResF had an 10.5% lower PNC for medication services. MHSU for the ‘any’ service type category and medication services remained significantly lower among ResF and a marginally significant lower counselling MHSU was also identified ( $p \leq 0.10$ ). The prevalence difference estimates indicated that ResF had an overall 11.3% lower MHSU for ‘any’ service type, a 9.1% lower medication service use and a 5.4% lower counselling service use.

Among those with a PNC, and after adjusting for covariates, the PSC (ie, need fully met or at least partially met) was lower among ResF for the ‘any’ service category and specifically, for both information and counselling service types. The prevalence difference estimates indicated that ResF had a fully met need that was lower by 14.6% for the ‘any’ service category, 13.4% for information services and 15.3% for counselling services. Additionally, the prevalence estimate for an at least partially met need was 7.9% lower among ResF for the ‘any’ service category and 12.3% lower for information services.

### Comparison with other findings

Our analyses were among personnel with a mental disorder, that is, those who would presumably benefit from MHSU and, ideally, perceive a need for these services. Other researchers have observed that need<sup>18 19</sup> and psychiatric distress<sup>39</sup> largely predict MHSU but this appears to be only one of many influencing factors. Our findings indicate that even after adjusting for many covariates, including several need-related proxies, ResF personnel’s overall MHSU was 61%; approximately, 11% lower relative to RegF. Others have found that even when controlling for need, MHSU among ResF personnel tends to be lower.<sup>12 18 19 39</sup> For example, one US study that assessed a sample of National Guard and Reserve personnel who returned from deployments to Iraq or Afghanistan between 2006 and 2009 identified 60% with a need for mental health services yet only 50% of these individuals reported accessing care in the 12 months following deployment return.<sup>39</sup> Additionally, other comparable US research has reported a 12-month postdeployment MHSU that was 56%<sup>19</sup> in one study among National Guard personnel with an objective need for services and 37%<sup>18</sup> in another. These findings suggest that barriers to mental healthcare likely exist for

**Table 5** Logistic regression results and marginal prevalence estimates for perceived sufficiency of care among Regular and Reserve Force members with an Afghanistan deployment and an identified mental disorder

	Need fully met versus not (partially or not)			Need at least partially met versus not§		
	Information	Medication	Any	Information	Counselling	Any
Perceived sufficiency of care (OR (95% CI))‡						
Model 1: unadjusted						
ResF versus RegF	0.42 (0.28 to 0.64)	0.84 (0.45 to 1.55)	0.60* (0.45 to 0.82)	0.53* (0.40 to 0.70)	0.63* (0.43 to 0.78)	0.46* (0.31 to 0.69)
Model 2: adding covariates for military and sociodemographic characteristics						
ResF versus RegF	0.46* (0.28 to 0.74)	0.82 (0.44 to 1.53)	0.68* (0.49 to 0.93)	0.62† (0.37 to 1.04)	0.87 (0.55 to 1.37)	0.49* (0.30 to 0.80)
Model 3: adding covariates for mental health						
ResF versus RegF	0.49* (0.29 to 0.82)	0.84 (0.45 to 1.57)	0.65* (0.47 to 0.90)	0.60* (0.43 to 0.82)	0.81 (0.51 to 1.30)	0.49* (0.29 to 0.83)
Model 4: adding covariates for LTE and child abuse (as propensity score)						
ResF versus RegF	0.53* (0.31 to 0.91)	0.74 (0.38 to 1.46)	0.63* (0.44 to 0.90)	0.53* (0.30 to 0.93)	0.9 (0.54 to 1.51)	0.51* (0.29 to 0.90)
Model 5: adding covariates for deployment associated mental health training						
ResF versus RegF	0.52* (0.30 to 0.90)	0.72 (0.37 to 1.43)	0.64* (0.44 to 0.91)	0.51* (0.29 to 0.90)	0.9 (0.54 to 1.51)	0.51* (0.29 to 0.90)
Model 6: adding covariates for deployment-related characteristics and experiences‡						
ResF versus RegF	0.40* (0.23 to 0.71)	0.69 (0.31 to 1.53)	0.46* (0.31 to 0.68)	0.51* (0.35 to 0.73)	0.83 (0.49 to 1.41)	0.42* (0.23 to 0.77)
Perceived sufficiency of care: marginal prevalence estimates from the final logistic regression model (% (95% CI))						
RegF	80 (76.1 to 83.8)	90.9 (88.1 to 93.6)	70.7 (66.9 to 74.5)	66.3 (62.4 to 70.3)	86.9 (83.6 to 90.2)	90.3 (88.0 to 92.5)
ResF	66.6 (58.7 to 74.5)	87.9 (81.8 to 93.9)	55.4 (48.9 to 62.0)	51.7 (45.1 to 58.3)	74.7 (67.2 to 82.1)	82.4 (76.8 to 88.0)
Marginal prevalence difference	-13.4* (-22.1 to -4.6)	-3 (-9.8 to 3.8)	-15.3* (-22.9 to -7.6)	-14.6* (-22.4 to -6.8)	-12.3* (-20.3 to -4.3)	-7.9* (-14.0 to -1.8)

\*Significant at  $p \leq 0.05$ .

†Significant at  $0.05 < p \leq 0.10$ .

‡A variable-reduction strategy was used with each logistic regression. Seven outcomes were assessed and the retained covariates were not necessarily the same for each outcome.

§One of the perceived sufficiency of care outcomes for medication services (ie, 'need at least partially met versus not') could not be assessed using logistic regression due to the very low fraction of reserve force personnel who indicated that this need was not met (ie, <0.5% compared with 4.4% for regular force personnel).

LTE, lifetime exposure to potentially traumatic experiences; RegF, regular force; ResF, reserve force.



ResF and among the various barriers to care, researchers have noted that perceiving a need for care is a strong predictor of MHSU in those with a mental disorder.<sup>9 17</sup> However, this may not be the determining factor for the observed MHSU differences between components in our study. PNC did not differ much between components in our population after controlling for many potential confounders, rather, system-level barriers (ie, availability, accessibility and affordability of services) may have a more prominent influence given the lower PSC we found among ResF. That is, while a need for care not being fully met would suggest that barriers other than perceiving a need for care were present, this is even more indicative when assessing whether a need was at least partially met (ie, when quantifying the level of perceived unmet need relative to at least partially met need); both fully met need and at least partially met need were generally lower (and unmet need higher) among ResF.

### Limitations

Our study's primary limitation relates to its use of a cross-sectional design and the associated limitations (eg, recall bias, information bias, unknown temporal sequence of associated factors, etc).<sup>40 41</sup> Additionally, our study only included individuals who were serving when the study was implemented and personnel with mental disorders have a significantly elevated risk of release from military service.<sup>42</sup> Hence, the inability to include the more than 10 000 personnel with an Afghanistan-related deployment who had left service prior to the survey<sup>10</sup> means that the present findings exclude the responses from individuals who may have had a mental disorder but had left service. Moreover, social support and social environment were only cursorily controlled for (eg, marital status and financial difficulties as proxies) with our analyses and these factors may have played a role in individuals' PNC, MHSU and PSC.<sup>43 44</sup>

### Implications

Among CAF members who would benefit from mental health services, such as those with a mental disorder, care seeking might be expected to follow once a need has been perceived.<sup>17 45</sup> We observed small differences between components in their PNC, mainly for medication services; however, these small differences did not translate into comparable MHSU or PSC. We observed MHSU differences that persisted after adjusting for many covariates, that is, a lower medication and to some degree, a lower counselling MHSU for ResF. Additionally, PSC differences also persisted and these were somewhat magnified between components; ResF personnel had a lower fully met need among those with a perceived need for information or counselling services and a lower at least partially met need among those with a perceived need for 'any' services, suggesting a barrier to care in addition to perceiving a need. Although barriers to care have been noted to include a failure to perceive a need for care, stigma, negative beliefs about mental disorders

and associated treatments, a concern over potential negative career consequences and systemic issues such as lengthy wait times and poor accessibility.<sup>15 16</sup> Our findings suggest the presence of systems-level differences in mental healthcare availability, accessibility and/or affordability (ie, civilian services use by ResF) and these require greater attention from the CAF as an organisation and researchers alike.

The small component differences in PNC may reflect a benefit from the CAF's mental health training programme that all personnel going on a deployment, regardless of component, receive; personnel are explicitly instructed how to recognise signs and symptoms of mental health problems.<sup>4</sup> However, the lower medication PNC and MHSU among ResF, along with the lack of a medication PSC difference between components, suggests that ResF members may have a view of medication use that differs from RegF members and if confirmed, this is something that would need to be addressed in future mental health education and training efforts.

Relatively, more ResF members perceived the information services provided to be insufficient and it's unknown whether this relates to the quality, quantity or breadth of information provided. Regional differences may play a role and future work will need to investigate whether the delivery of such services are standardised across regions.

The lower PSC for counselling services indicated by ResF members, along with both their marginally lower counselling MHSU and comparable counselling PNC, suggests that ResF members have been recognising their need for services but may be encountering barriers to accessing services. Some recent Canadian research in this population has noted that ResF members had more past-year civilian MHSU relative to RegF members with 29% reporting that not being eligible for CAF health services was their justification for using civilian services.<sup>8</sup> Additionally, there is indeed some evidence, although from small studies with small, select samples, that some ResF personnel may be encountering barriers that either limit their access to CAF mental healthcare or that lead them to choose not to use it.<sup>11</sup> Moreover, the CAF mental health system is arguably better resourced and optimised to aid military personnel with mental health problems when compared with the Canadian civilian system,<sup>10</sup> and thus, the greater use of civilian services by ResF personnel may be associated with their lower perceptions of the sufficiency of information and counselling services.

### CONCLUSION

PNC, MHSU and PSC differences were observed between currently serving RegF and ResF personnel with an identified mental disorder and these largely persisted after adjustment for potential confounders. Our findings suggest that the most prominent differences relate to deficits in ResF members' perceptions of the sufficiency of information services and counselling services and these may be a result of perceived or experienced barriers to

care beyond perceiving a need for such care. Additional research is needed to further investigate differences in barriers to mental healthcare between components, including the consistency of information services delivery, as this would help to update information services and awareness programme with a goal of offsetting any identified barriers.

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**Data availability statement** Data may be obtained from a third party and are not publicly available.

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