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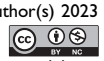

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Mental Health of Royal Canadian Mounted Police at the Start of the Cadet Training Program

Santé mentale de la Gendarmerie royale du Canada au début du Programme de formation des cadets

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Abstract

Objective: Serving Royal Canadian Mounted Police (RCMP) have screened positive for one or more mental disorders based on self-reported symptoms with substantial prevalence (i.e., 50.2%). Mental health challenges for military and paramilitary populations have historically been attributed to insufficient recruit screening; however, cadet mental health when starting the Cadet Training Program (CTP) was unknown. Our objective was to estimate RCMP Cadet mental health when starting the CTP and test for sociodemographic differences.

Method: Cadets starting the CTP completed a survey assessing self-reported mental health symptoms ($n = 772$, 72.0% male) and a clinical interview ($n = 736$, 74.4% male) with a clinician or supervised trainee using the Mini-International Neuropsychiatric Interview to assess current and past mental health.

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Results: The percentage of participants screening positive for one or more current mental disorders based on self-reported symptoms (15.0%) was higher than the diagnostic prevalence for the general population (10.1%); however, based on clinical interviews, participants were less likely to screen positive for any current mental disorder (6.3%) than the general population. Participants were also less likely to screen positive for any past mental disorder based on self-report (3.9%) and clinical interviews (12.5%) than the general population (33.1%). Females were more likely to score higher than males (all *p*s<.01; Cohen's *d*s .23 to .32) on several self-report mental disorder symptom measures.

Conclusions: The current results are the first to describe RCMP cadet mental health when starting the CTP. The data evidenced a lower prevalence of anxiety, depressive, and trauma-related mental disorders than the general population based on clinical interviews, contrasting notions that more rigorous mental health screening would reduce the high prevalence of mental disorders among serving RCMP. Instead, protecting RCMP mental health may require ongoing efforts to mitigate operational and organizational stressors.

Résumé

Objectif: Dépistage positif au service de la Gendarmerie royale du Canada (GRC) d'un trouble mental ou plus d'après des symptômes auto-déclarés ayant une prévalence substantielle (c.-à-d. 50,2%). Les problèmes de santé mentale pour les populations militaires et paramilitaires ont été attribués historiquement au dépistage insuffisant des recrues; cependant, la santé mentale des cadets quand ils commencent le Programme de formation des cadets (PFC) n'est pas connue. Notre objectif était d'estimer la santé mentale des cadets de la GRC quand ils commencent le PFC et vérifier les différences sociodémographiques.

Méthode: Les cadets commençant le PFC répondent à un sondage évaluant les symptômes de santé mentale auto-déclarés ($n = 772$, 72,0% de sexe masculin) et à une entrevue clinique ($n = 736$, 74,4% de sexe masculin) avec un clinicien ou un stagiaire supervisé à l'aide du Mini entretien neuropsychiatrique international pour évaluer la santé mentale actuelle et passée.

Résultats: Le pourcentage des participants dont le dépistage est positif à un trouble mental actuel ou plus selon des symptômes auto-déclarés (15,0%) était plus élevé que la prévalence diagnostique de la population générale (10,1%); toutefois, selon les entrevues cliniques, les participants étaient moins probables d'avoir un dépistage positif de tout trouble mental actuel (6,3%) que la population générale. Les participants étaient aussi moins probables d'avoir un dépistage positif d'un trouble mental passé d'après le rapport auto-déclaré (3,9%) et les entrevues cliniques (12,5%) que la population générale (33,1%). Les femmes étaient plus susceptibles d'avoir des scores plus élevés que les hommes (all *p*s<,01; Cohen's *d*s, 23 à 32) à plusieurs mesures de symptômes de trouble mental auto-déclarés.

Conclusions: Les résultats actuels sont les premiers à décrire la santé mentale des cadets de la GRC quand ils commencent le PFC. Les données ont révélé une prévalence plus faible de l'anxiété, des troubles mentaux dépressifs et relevant de traumas que dans la population générale selon une entrevue clinique, des notions contrastantes qu'un dépistage de santé mentale plus rigoureux réduirait la prévalence élevée des troubles mentaux chez les personnes en service dans la GRC. La protection de la santé mentale de la GRC peut plutôt nécessiter des efforts constants pour atténuer les stresseurs opérationnels et organisationnels.

Keywords

public safety personnel, RCMP, police cadets, mental health

Introduction

Public Safety Personnel (PSP[1]) include diverse professionals (e.g., border services personnel, communicators, correctional workers, firefighters, paramedics, and police) who maintain public safety.[1,2] PSP are frequently exposed to potentially psychologically traumatic events (PPTEs[3]) and other occupational stressors[4] that can lead to or exacerbate posttraumatic stress injuries[1,2] such as posttraumatic stress disorder (PTSD)[5] and chronic pain.[6] Serving Royal Canadian Mounted Police (RCMP) have reported high proportions of positive screenings for PTSD (30.0%) and Major Depressive Disorder (MDD; 31.7%), with half (50.2%) screening positive for one or more mental disorders.[7]

Since at least World War I, some leaders have suggested mental disorders result from the inherent weaknesses of people who should have been pre-emptively excluded from service.[8] Misconceptions and stigma have created extensive barriers to care,[9] particularly for PTSD among PSP.[10] There are pervasive notions that mental disorders among PSP result from recruiting people who were inherently unfit[11];

in contrast, implicit in police selection processes would be arguments that recruits are particularly healthy. Research evidence regarding the mental health of PSP recruits is very limited, with almost no prospective research including comprehensive assessments. We found two published studies where municipal police recruits from the United States ($n = 278$, $n = 76$) were assessed using self-reported measures and structured clinical interviews, which evidenced participants as having mental health comparable to the general population.[12,13]

The RCMP has prioritized evidence-based solutions to mitigate member mental health challenges.[2] There are many proffered programs for PSP mental health, but very little research evidence regarding effectiveness, due in part to absent control conditions.[14–16] Available results suggest extant programs produce time-limited benefits[17,18] with small effect sizes based on few longitudinal[17,19] and cross-sectional[20–22] research designs, strongly influenced by individual differences[18] and program delivery fidelity.[23] The RCMP is developing, implementing, and longitudinally assessing a multimodal mental health solution including evidence-based biopsychosocial assessments and evidence-informed integrated cadet mental health training, called the RCMP Study.[24]

The RCMP Study can address several research gaps. The current paper focused on clarifying the mental health of RCMP cadets at the start of the Cadet Training Program (CTP; i.e., pre-training). As per previous research,[12,13] participating RCMP cadets were expected to have mental health comparable to or better than the general population at pre-training as a function of self-selection biases related to willingness to serve and ability to meet rigorous CTP selection criteria.[25] Previous research indicates female police officers may report more mental disorder symptoms than male police officers based on several mediating environmental variables[26,27]; accordingly, we hypothesized females would report more symptoms than males.

Methods

Procedure

Data were collected using a web-based self-report survey in English or French. Full details on the methods, pre-registered hypotheses, measures, and structured clinical interviews have been published in a protocol paper.[24] The RCMP Study was approved by the University of Regina Institutional Research Ethics Board (File No. 2019-055) and the RCMP Research Ethics Board (File No. SKM_C30818021312580). The RCMP Study was also approved through a Privacy Impact Assessment during overall approval NARMS 201611123286 and PSPC 201701491/M7594174191. The current paper focuses on data collected through the Full Assessment (i.e., FA1) at pre-training (i.e., Time 1 (T1)) between May 2019 and October 2021. The Full Assessment includes data collected through self-reported symptom measures completed during a Full Survey (i.e., F1) and structured Clinical Interview results (C1).

Study Participants

Participants were RCMP cadets starting the 26-week CTP. The CTP eligibility requires: Canadian citizens or permanent residents, 19 to 57 years old, can fluently read, write, and speak English or French; and pass security clearances, medical examinations, a polygraph test, and minimum physical standards.[25] Psychological screening of cadets is limited to a Minnesota Multiphasic Personality Inventory-2 (MMPI-2[28,29]) assessment reviewed by a clinical psychologist to determine psychological fitness for duty. There were no study exclusion conditions for persons otherwise qualified for the CTP. Cadets ($n = 1696$) were invited to participate in the RCMP Study as part of the standard training condition.[24] Most participants completed the Full Survey (96.4%; $n = 772$), the Clinical Interview (91.9%; $n = 736$), or both (88.3%; $n = 707$), and all available data were used for each analysis. Mitigation strategies were used to minimize socially desirable responses (e.g., clinicians external to the RCMP, explicit provisions of confidentiality for interviews and data anonymity).

Self-Report Symptom Measures

Mental health symptoms were assessed using web-delivery of the Full Survey at pre-training, including the PTSD Check List 5 (PCL-5[30]); the patient health questionnaire-9 (PHQ-9[31]); the Panic Disorders Symptoms Severity Scale, Self-Report (PDSS-SR[32]); the generalized anxiety disorder scale-7 (GAD-7[33]); the social interaction phobia scale (SIPS[34]); and the alcohol use disorders identification test (AUDIT[35]). For the PCL-5, as per the Diagnostic and Statistical Manual of Mental Disorders, 5th edition (DSM-5[5]), participants reported on their lifetime exposures (i.e., prior to attending the CTP) to a specific list of PPTEs provided by the Life Events Checklist for the DSM-5 (LEC-5).[30,36–39] The LEC-5 does not include "sudden and unexpected death of someone close to you" as a potential index PPTE, making the screening process arguably more conservative.[37] Participants select an index PPTE (i.e., "Consider which event from the list was the worst, most distressing event. If more than one of these events happened to you, select the one event that currently causes you the most distress") against which to rate their past month symptoms using the PCL-5 items. A positive PCL-5 screen required participants to report exposure to 1+ LEC-5 items, meet minimum criteria for each PTSD cluster, and have a total score >32.[30]

Participants reported symptoms as per the instructions for each other scale: PHQ-9, past 14 days; PDSS-SR, past 7 days; GAD-7, past 14 days; SIPS, no specific time

window; and AUDIT, past year. Positive screens for each other scale were determined based on published recommendations for total scores: PHQ-9 > 9[40]; PDSS-SR > 7[41]; GAD-7 > 9[42]; SIPS > 20[34]; and AUDIT > 15.[43,44] All measures have been validated for screening to identify individuals who may require clinical attention, rather than as definitive diagnostic tools. Participants were also asked to self-report having been given any psychiatric diagnoses (e.g., MDD, panic disorder) prior to starting the CTP (i.e., "past") using the History of Mood, Anxiety, and Other Psychiatric Diagnoses (HAMOPD; author-built scale).

Clinical Interviews (Mini-International Neuropsychiatric Interview)

A registered clinical psychologist or supervised trainees conducted clinical interviews using the Mini-International Neuropsychiatric Interview (M.I.N.I.).[45–47] The published M.I.N.I. inter-rater reliability exceeds 75% across all individual diagnostic categories, with the majority (70%) being in excess of 90%.[45,46] Indications from the clinical interview that a participant would have met the criteria for diagnoses prior to starting the CTP were categorized and included in estimates of "past" disorder prevalence.

Demographic Variables

Demographic characteristics, including sex (i.e., male, female), age (i.e., 19 to 29 years, 30 to 39 years, 40 to 49 years, 50 to 59 years), marital status (i.e., single, separated/divorced, married/common-law), ethnicity (i.e., Asian, Black, First Nations/Inuit/Metis, Hispanic, South Asian, White/Caucasian), province of residence (i.e., Western Canada [British Columbia, Alberta, Saskatchewan, Manitoba], Eastern Canada [Ontario, Quebec], Atlantic Canada [Newfoundland & Labrador, Prince Edward Island, Nova Scotia, New Brunswick], or Northern Territories [Yukon, Northwest Territories, Nunavut]), and education (i.e., high school graduate or less, some post-secondary school, and university degree/4-year college or higher) were used for a detailed description of outcomes.

Statistical Analysis

Study participants were described on their demographic characteristics (i.e., sex, age, marital status, ethnicity, province of residence, education[24]) for descriptive statistics at pre-training and comparisons between demographic categories. Prevalence of positive screens based on self-reported measures and clinical interviews were calculated as percentages. A series of *t*-tests and analysis of variance (ANOVA) were used to test for differences across demographic categories. Holm–Bonferroni adjustments were applied to alpha levels to account for familywise error rate in multiple comparisons from post hoc tests. Cohen's *d*s are reported as standardized effect sizes for *t*-tests to indicate the standardized differences between two means, with 0.20 representing a small effect; 0.50 a medium effect; and 0.80 a large effect. Partial eta squared (η_p^2) is reported as effect sizes in ANOVA tests, measuring the proportion of variance explained by a given variable after accounting for variance explained by other variables in the model, with .01 representing a small effect; .06 a medium effect; and .14 a large effect.[48] Logistic regression models were conducted to assess the hypothesized potential sex differences in positive screens for current mental disorders. Odds ratios (ORs) and 95% confidence intervals (CIs) are reported.

Current results for the prevalence of positive screens were compared with published results for the general population and a sample of serving RCMP.[7] A series of binomial tests were performed to evaluate statistically significant differences between mental disorder prevalence among cadets with the general population and serving RCMP.

Results

Self-reported participant demographics and symptom scores are provided in Table 1. Participants were mostly male (72.0%), between the age of 19 and 29 years old (59.8%), White/Caucasian (78.8%), single (47.2%), or married/common-law (42.9%). Participants were mainly from Western Canada (52.8%; i.e., British Columbia, Alberta, Saskatchewan, Manitoba) and reported having either some post-secondary school (e.g., partial college education, 2/3-year technical training or certificate; 43.4%); or a university degree or higher level of education (e.g., 4-year college or greater; 39.5%).

There were few statistically significant differences in mental disorder symptoms across demographic categories. Females reported higher scores than males for symptoms of PTSD ($p < .01$), MDD ($p < .001$), Generalized Anxiety Disorder (GAD; $p < .001$), and Social Anxiety Disorder (SAD; $p < .01$), and lower scores than males for symptoms of Alcohol Use Disorder (AUD; $p < .01$). Effects were observed for age and AUD symptom scores ($p < .05$); ethnicity and panic disorder and PTSD symptom scores ($ps < .05$); and the province of residence and MDD ($p < .01$), PTSD ($p < .05$), and SAD symptom scores ($p < .05$); however, follow-up multiple pairwise comparisons were not statistically significant due to application of the Holm–Bonferroni adjustment to control Type I error. Participants who were single reported higher scores for symptoms of AUD than participants who were married/common-law, $F(2,551) = 6.46$, $p < .05$, $\eta_p^2 = 0.023$. Participants from Western Canada (i.e., British Colombia, Alberta, Saskatchewan, Manitoba) reported higher GAD-7 scores, $F(3, 761) = 6.85$, $p < .001$, $\eta_p^2 = 0.026$, than participants from Eastern Canada (Ontario, Quebec).

Table 1. Participant Demographic and Mental Disorder Screening Measure Characteristics.

	Full survey sample[2] % (*n*)	Full clinical interview sample[3] % (*n*)	PTSD (PCL-5) Mean (SD)	*n*	Major depressive disorder (PHQ-9) Mean (SD)	*n*	GAD-7 Mean (SD)	*n*	Social anxiety disorder (SIPS) Mean (SD)	*n*	Panic disorder (PDSS-SR)[4] Mean (SD)	*n*	AUD (AUDIT) Mean (SD)	*n*
Total sample	100 (772)	100 (736)	5.95 (9.33)	697	3.19 (3.60)	762	4.17 (4.24)	767	5.22 (6.62)	768	4.45 (3.62)	78	3.64 (2.43)	612
Sex														
Male	72.0 (556)	74.0 (507)	5.36 (8.67)	498	2.93 (3.29)	550	3.77 (3.93)	555	4.74 (6.11)	554	4.79 (3.75)	33	3.81 (2.5)	435
Female	25.1 (194)	26.0 (178)	7.59 (10.79)	178	4.09 (4.35)	190	5.11 (4.75)	192	6.47 (7.49)	192	5.63 (3.00)	30	3.24 (2.22)	160
Test statistic[1]	—		$t(674) = -2.75$**	—	$t(738) = -3.84$***	—	$t(743) = -3.83$***	—	$t(744) = -3.19$**	—	$t(61) = -0.98$	—	$t(593) = 2.52$**	—
Effect size (Cohen's *d*)	—		0.240		0.323		0.321		0.267		0.248		0.233	
Age														
19–29	59.8 (462)	63.7 (427)	5.91 (9.29)	413	3.33 (3.75)	458	4.22 (4.29)	460	5.39 (6.64)	463	5.23 (3.84)	39	3.81 (2.53)	370
30–39	28.0 (216)	28.8 (193)	6.25 (9.31)	201	3.31 (3.58)	211	4.38 (4.26)	214	5.52 (6.79)	217	5.50 (2.86)	20	3.43 (2.18)	169
40–49	6.3 (49)	6.7 (45)	6.19 (11.12)	43	2.63 (2.95)	48	3.19 (3.29)	48	3.85 (5.07)	48	^	^	2.67 (1.94)	43
50–59	0.6 (5)	0.7 (5)	^	^	2.40 (1.52)	5	2.40 (2.07)	5	1.40 (2.61)	5	—	—	^	^
Test statistic[1]	—		$F(3,657) = 0.48$		$F(3,718) = 0.64$		$F(3,728) = 1.36$		$F(3,724) = 1.47$		$F(2,60) = 0.09$	—	$F(3,581) = 3.54$*	
Effect size (η_p^2)	—		.002		.003		.006		.006		.003		.018	
Ethnicity														
Asian	6.5 (46)	6.9 (45)	7.40 (8.33)	42	3.11 (3.12)	45	3.91 (3.52)	45	5.30 (6.02)	45	—	—	3.46 (2.80)	26
Black	3.4 (24)	2.8 (18)	4.70 (7.58)	23	1.96 (3.28)	24	2.29 (2.58)	24	2.50 (4.12)	24	^	^	1.92 (1.26)	13
First Nations/Inuit/Metis	3.2 (23)	2.9 (19)	6.80 (8.07)	20	3.00 (3.23)	23	3.48 (3.13)	23	4.70 (4.91)	23	^	^	3.68 (2.89)	19
Hispanic	1.5 (11)	1.7 (11)	14.80 (17.68)	10	4.36 (5.92)	11	5.90 (5.59)	11	4.73 (7.03)	11	^	^	2.60 (1.50)	10
South Asian	6.6 (47)	6.4 (42)	7.55 (11.14)	40	3.40 (4.38)	46	4.57 (4.78)	46	4.87 (5.94)	47	8.17 (3.97)	6	4.12 (2.80)	26
White/Caucasian	78.8 (562)	79.3 (517)	5.48 (8.64)	506	3.22 (3.48)	555	4.10 (4.18)	559	5.35 (6.62)	559	4.63 (2.95)	46	3.74 (2.41)	477
Test statistic[1]	—	—	$F(5,635) = 2.85$*		$F(5,698) = 0.87$		$F(5,702) = 1.58$		$F(5,703) = 0.97$		$F(4,56) = 2.99$*		$F(5,565) = 2.01$	
Effect size (η_p^2)	—	—	.022		.006		.011		.007		.176		.017	
Marital status														
Single	47.2 (364)	54.4 (331)	6.35 (9.62)	328	3.37 (3.78)	358	4.14 (4.08)	362	5.73 (6.78)	362	4.49 (3.85)	35	4.00 (2.63)[a]	280
Separated/divorced	1.6 (12)	1.9 (12)	8.17 (9.39)	12	3.00 (2.63)	12	5.92 (4.64)	12	4.42 (4.60)	12	-	-	4.30 (2.00)[a,b]	10
Married/common-law	42.9 (331)	46.7 (301)	5.59 (9.06)	300	3.08 (3.55)	327	3.97 (4.24)	328	4.75 (6.29)	329	4.88 (2.94)	26	3.28 (2.17)[b]	264
Test statistic[1]	—	—	$F(2,637) = 0.84$		$F(2,694) = 0.54$		$F(2,699) = 1.31$		$F(2,700) = 2.03$		$F(2,59) = 0.35$		$F(2,551) = 6.46$**	
Effect size (η_p^2)	—	—	.003		.002		.004		.006		.012		.023	
Province of residence[a]														
Western Canada (BC, AB, SK, MB)	52.8 (408)	54.2 (381)	6.63 (9.96)	373	3.43 (3.73)	403	4.62 (4.47)[a]	406	5.73 (6.63)	406	4.49 (3.50)	43	3.56 (2.26)	325
Eastern Canada (ON, QC)	34.6 (267)	33.4 (235)	4.50 (7.66)	240	2.70 (3.36)	263	3.34 (3.73)[b]	266	4.42 (5.83)	266	3.75 (3.80)	24	3.76 (2.67)	203
Atlantic Canada (PEI, NS, NB, NFL)	11.3 (87)	11.4 (80)	7.15 (10.52)	75	3.79 (3.69)	86	4.84 (4.38)[a,b]	85	5.48 (8.66)	86	6.10 (3.63)	10	3.80 (2.49)	75
Northern Territories (YK, NWT, NVT)	1.0 (8)	1.0 (7)	6.14 (9.74)	7	1.38 (0.92)	8	1.50 (1.41)[a,b]	8	2.38 (2.56)	8	—	—	2.43 (1.27)	7
Test statistic[1]	—	—	$F(3,691) = 3.04$*		$F(3,756) = 3.72$**		$F(3,761) = 6.85$***		$F(3,762) = 2.61$*		$F(2,74) = 1.50$		$F(3,606) = 0.99$	
Effect size (η_p^2)	—	—	.013		.015		.026		.010		.039		.005	
Education														
High school graduate or less	10.2 (79)	11.0 (73)	6.94 (8.79)	66	3.85 (4.21)	78	4.71 (4.62)	78	5.94 (7.56)	78	6.11 (3.33)	9	3.28 (1.94)	66
Some post-secondary school	43.4 (335)	46.1 (305)	5.92 (9.32)	309	3.29 (3.57)	328	4.15 (4.28)	332	5.07 (6.41)	332	5.38 (4.13)	21	3.84 (2.61)	262
University degree/4-year college or higher	39.5 (305)	42.8 (283)	5.71 (9.40)	271	3.05 (3.56)	303	3.97 (4.02)	304	5.20 (6.44)	305	4.87 (3.14)	30	3.56 (2.37)	246

(continued)

Table 1. Continued.

	Full survey sample[2] % (*n*)	Full clinical interview sample[3] % (*n*)	PTSD (PCL-5) Mean (SD)	*n*	Major depressive disorder (PHQ-9) Mean (SD)	*n*	GAD-7 Mean (SD)	*n*	Social anxiety disorder (SIPS) Mean (SD)	*n*	Panic disorder (PDSS-SR)[4] Mean (SD)	*n*	AUD (AUDIT) Mean (SD)	*n*
Test statistic[1]	—	—	$F(2,643) = 0.46$		$F(2,706) = 1.56$		$F(2,711) = 0.95$		$F(2,712) = 0.55$		$F(2,57) = 0.46$		—	
$F(2,571) = 1.65$ Effect size (η_p^2)	—	—	.001		.004		.003		.002		.016		.006	

Note. PTSD = posttraumatic stress disorder; PCL-5 = posttraumatic stress disorder checklist for DSM-5; PHQ-9 = patient health questionnaire-9; GAD-7 = generalized anxiety disorder scale-7; SIPS = social interaction phobia scale; PDSS-SR = panic disorder symptoms severity scale, self-report; AUDIT = alcohol use disorders identification test.

[a]AB = Alberta; BC = British Columbia; MB = Manitoba; NB = New Brunswick; NFL = Newfoundland and Labrador; NS = Nova Scotia; NVT = Nunavut; NWT = Northwest Territories; ON = Ontario; PEI = Prince Edward Island; QC = Quebec; SK = Saskatchewan; YK = Yukon.

[1]The test results comparing scores on mental disorder screening measures across categorical participant demographics; *t*(degrees of freedom) = test statistic; *F*(numerator degrees of freedom, denominator degrees of freedom) = test statistic.

[2]Total percentages may not sum to 100 and *n*s may not sum to 772 due to non-response or responding "other."

[3]Total percentages may not sum to 100 and *n*s may not sum to 736 due to 29 clinical interview participants not completing the full survey to provide demographic information.

[4]A limited number of participants reported values for PD (PDSS-SR) because selecting "No" for "ever having experience with panic attacks" or "having panic attack in the last 7 days," meant participants were not presented with the rest of the PDSS-SR questions.

*$p < .05$, **$p < .01$, ***$p < .001$—statistically significantly different; Holm–Bonferroni adjustment was applied to alpha level to control type I error in multiple comparisons.

Table 2 presents statistically significant differences across males and females for positive mental disorder screenings. Based on self-report measures, female cadets were more likely than male cadets to screen positive for current MDD (OR, 2.03; 95% CI, 1.12 to 3.67), GAD (OR, 2.06; 95% CI, 1.27 to 3.32), and SAD (OR, 2.57; 95% CI, 1.17 to 5.66). Based on clinical interview data, female cadets were less likely than male cadets to meet the criteria for AUD (OR, 0.30; 95% CI, 0.09 to 1.00). Statistical tests for sex differences in current MDD, GAD, SAD, and panic disorder using clinical interview data could not be conducted due to the small number of participants meeting the criteria for those disorders across the Clinical Interviews.

Table 3 presents prevalence percentages of positive screens for mental disorders for participants at pre-training based on current self-reported symptoms, self-reported prior diagnoses, and clinical interview screenings for current and past mental disorders. Table 3 also presents available general population prevalence percentages. At pre-training, participants (15.1%) self-reported symptoms consistent with a positive screen for one or more current mental disorders; higher than the general population (10.1%; $p < .001$); including current GAD, MDD ($ps < .001$), and PTSD ($p < .05$). In contrast, the percentage of participants meeting criteria for any current mental disorder diagnosis based on clinical interview data (6.3%) was much lower than for the general population (10.1%[49]); including GAD, MDD, PTSD, and SAD considered in isolation. Statistical tests comparing general population mental disorder prevalence with prevalence from clinical interview data in the present paper were not conducted due to differing methods of data collection (i.e., population prevalence relying on self-report measures). The percentage of participants who self-reported any mental disorder diagnoses prior to starting the CTP (3.9%) was lower than the general population (33.1%[49]; $p < .001$), with the percentage of participants meeting criteria for a past mental disorder based on clinical interview data (12.5%) being much lower as well.

Based on self-report data using AUDIT total scores >15, no participants screened positive for AUD; however, based on Clinical Interview data, some participants met the criteria for AUD (4.6%; $n = 34$), with nearly all cases being classified as "mild severity" (3.9%, $n = 29$). Self-reported symptom screenings using an AUDIT total score >7 were also calculated to facilitate more nuanced comparisons between the Full Survey and Clinical Interview results. Prevalence proportions resulting from the lower AUDIT cut-off score were closer to results from the Clinical Interview data, such that 6.4% ($n = 39$) of participants screened positive for risky alcohol use "in excess of low risk guidelines" (p.22).[44]

Relatively few participants ($n = 78$) completed all PDSS-SR questions in the Full Survey due to the two header questions asking participants whether they have "experience with panic attacks," and whether they have experienced a panic or limited symptom attack "in the past 7

Table 2. Logistic Regression Model for the Association of Sex and Mental Disorders.

	PTSD OR (95% CI)	Major depressive disorder OR (95% CI)	GAD OR (95% CI)	SAD OR (95% CI)	Panic disorder OR (95% CI)	AUD OR (95% CI)
Survey Measure	PCL-5	PHQ-9	GAD-7	SIPS	PDSS-SR[3]	AUDIT
Male	1	1	1	1	1	—
Female	1.81 (0.69, 4.75)	2.03 (1.12, 3.67)*	2.06 (1.27, 3.32)*	2.57 (1.17, 5.66)*	2.21 (0.58, 8.47)	—
Interview Screening	PTSD—current	MDD—current	GAD—current	SAD—current	PD—current	AUD—12 months
Male	—	^	^	^	^	1
Female	—	^	^	^	^	0.30 (0.09, 1.00)*

Note. OR = odds ratios; CI = confidence interval; PTSD = posttraumatic stress disorder; PCL-5 = posttraumatic stress disorder checklist for DSM-5; PHQ-9 = patient health questionnaire-9; GAD-7 = generalized anxiety disorder scale-7; SIPS = social interaction phobia scale; PDSS-SR = panic disorder symptoms severity scale, self-report; MDD = major depressive disorder; SAD = social anxiety disorder; PD = panic disorder; AUD = alcohol use disorder.
*$p < .05$, **$p < .01$, ***$p < .001$—statistically significantly different.
^Sample size between 1 and 5, so data not presented.

Table 3. Mental Disorder Prevalence (%) Based on Self-Report Measures and Clinical Interviews.

		Current RCMP study cadet participant results at pre-training assessment		General population	Comparing the survey prevalence proportions with the general population
Disorder	Survey measure	Survey % (*n*)	Clinical interview % (*n*)	%	Test statistic
Alcohol use disorder—past 12 months	AUDIT	0.0 (0)	4.6 (34)	3.2[56]	—
Generalized anxiety disorder—current	GAD-7	11.0 (84)	^	5.9[57]	5.86***
Generalized anxiety disorder—past†	HAMOPD	2.7 (21)	—	8.7[56]	−5.81***
Major depressive disorder—current	PHQ-9	6.6 (50)	^	2.2[58]	8.11***
Major depressive disorder—past	HAMOPD	1.3 (10)	10.9 (80)	9.9[59]	−7.92***
Major depressive episode—current		—	^	4.7[56]	—
Major depressive episode—past		—	11.5 (85)	11.3[56]	—
Panic disorder—current	PDSS-SR	1.6 (12)	^	1.5[56]	0.01
Panic disorder—past	HAMOPD	0.0 (0)	1.4 (10)	3.7[60]	—
Posttraumatic stress disorder—current	PCL-5	2.7 (19)	^	1.7[56]	1.95*
Posttraumatic stress disorder—past	HAMOPD	0.0 (0)	—	8.7[61]	—
Social anxiety disorder—current	SIPS	3.6 (28)	^	3.2[62]	0.60
Social anxiety disorder—past	HAMOPD	0.0 (0)	—	8.1[60]	—
Any anxiety disorder—current		13.2 (102)	1.2 (9)	4.7[60]	11.14***
Any anxiety disorder—past	HAMOPD	3.1 (24)	1.4 (10)	11.5[60]	−7.23***
Any mood disorder—current		6.6 (50)	^	5.4[56]	1.36
Any mood disorder—past	HAMOPD	1.3 (10)	11.7 (86)	12.6[56]	−9.38***
Any disorder—current		15.1 (116)	6.3 (46)	10.1[56]	4.53***
Any disorder—past	HAMOPD	3.9 (30)	12.5 (92)	33.1[56]	7.59***
Total number of positive screens—current					
0		84.9 (653)	93.8 (690)	—	—
1		8.7 (67)	5.8 (43)	—	—
2		3.6 (28)	^	—	—
3 or more		2.7 (21)	^	—	—
Total number of positive screens—past					
0		91.5 (706)	87.5 (644)	—	—
1		2.7 (21)	1.1 (8)	—	—
2		1.0 (8)	4.9 (36)	—	—
3 or more		^	6.5 (48)	—	—
Total sample		100 (772)	100 (736)	100	

Note. AUDIT = alcohol use disorders identification test; GAD-7 = generalized anxiety disorder scale-7; HAMOPD = history of mood, anxiety, and other psychiatric diagnoses; PCL-5 = posttraumatic stress disorder checklist for DSM-5; PDSS-SR = panic disorder symptoms severity scale, self-report; PHQ-9 = patient health questionnaire-9; SIPS = social interaction phobia scale; CTP = Cadet Training Program.
—No data available.
^Sample size between 1 and 5, so data not presented.
†Past includes self-reported diagnoses received prior to starting the CTP or indications from the clinical interview that a participant would have met criteria for diagnoses prior to starting the CTP.

days." Participants who indicated never having had a panic attack or not experiencing a panic attack in the past week were not presented with the remainder of the PDSS-SR items. Accordingly, panic disorder prevalence in Tables 3 and 4 were adjusted to use a denominator including participants ($n = 764$) who did not complete the PDSS-SR based on responses to the aforementioned items indicating they had never experienced a panic attack.

Table 4. Mental Disorder Screening Prevalence (%) and Descriptive Statistics Based on Current and Previously Published Self-Report Measures.

	Current RCMP study cadet participant results at pre-training assessment			Previously published RCMP results			Comparing current participant scores and previously published RCMP scores		Comparing current participants' prevalence proportions with previously published RCMP
	n	Mean (SD)	Percentage screening positive % (*n*)	*N*	Mean (SD)	Percentage screening positive % (*n*)	Effect size (Cohen's *d*)	Test statistic	
PTSD (PCL-5)	697	5.95 (9.33)	2.7 (19)	1433	24.94 (20.12)	30.0 (430)	1.095***	−17.91***	
Major depressive disorder (PHQ-9)	762	3.19 (3.60)	6.6 (50)	1374	7.28 (6.06)	31.7 (435)	0.767***	−14.85***	
GAD-7	767	4.17 (4.24)	11.0 (84)	1344	5.95 (5.28)	23.3 (313)	0.362***	−8.05***	
Social anxiety disorder (SIPS)	768	5.22 (6.62)	3.6 (28)	1323	11.29 (11.58)	18.7 (247)	0.604***	−10.65***	
Panic disorder (PDSS-SR)[1]	78	4.45 (3.62)	1.6 (12)	1258	3.02 (4.72)	12.0 (151)	0.305***	−8.82***	
Alcohol use disorder (AUDIT)	612	3.64 (2.43)	0.0 (0)	1263	4.89 (4.44)	3.9 (49)	0.322***	-	
Total sample size	772			2156					

Note. PTSD = posttraumatic stress disorder; PCL-5 = posttraumatic stress disorder checklist for DSM-5; PHQ-9 = patient health questionnaire; GAD-7 = generalized anxiety disorder scale-7; SIPS = social interaction phobia scale; PDSS-SR = panic disorder symptoms severity scale, self-report; AUD = alcohol use disorder; AUDIT = alcohol use disorders identification test; SD = standard deviation; RCMP = Royal Canadian Mounted Police.

*$p < .05$, **$p < .01$, ***$p < .001$—statistically significantly different.

Prevalence of positive screens based on self-reported current mental disorder symptoms (i.e., PTSD, MDD, GAD, SAD, panic disorder, AUD) at pre-training is presented in Table 4, along with previously published results for serving RCMP.[7] Serving RCMP members in this comparator sample were mostly men (62.5%), with an average age of 42.83 ($SD = 8.90$) years, having served an average of 17.42 ($SD = 9.17$) years; among those who chose to provide their rank at the time of assessment, the most commonly reported rank was Constable (35%). The current participants reported lower scores on all self-report mental disorder symptom measures (i.e., PTSD, MDD, GAD, SAD, AUD; all $ps < .001$), except for the PDSS-SR where cadets reported higher scores on current panic disorder symptoms at pre-training than serving members ($p < .001$). Participants also reported lower prevalence proportions on positive mental disorder screenings for PTSD, MDD, GAD, SAD, and panic disorder (all $ps < .001$) compared to serving RCMP members. A comparison of positive screens for AUD could not be made with serving RCMP members due to no participants screening positive in the current sample.

Discussion

The current results help fill important extant literature gaps for PSP mental health, specifically for RCMP, by focusing on the mental health of RCMP cadets starting the CTP. Serving RCMP appear more likely to screen positive for mental disorders than the general population,[7] a difference attributed to occupational stressors[3,4,7]; accordingly, we hypothesized cadets beginning the CTP would screen positively less often than serving RCMP as a result of not yet having experienced said occupational stressors. Participants were also expected to screen positively for mental disorders less often than the general population based on self-report and clinical interviews due to the rigorous CTP selection criteria. The current results are novel and underscore the importance of research focusing on cadets starting the CTP.

Participants were statistically significantly more likely to screen positive for current GAD, MDD, and PTSD based on self-report symptom screening measures compared to current diagnostic prevalence in the general population. In contrast, based on clinical interviews, participants were less likely to screen positive for any current mental disorder (6.3%) than the general public (10.1%[49]), including current GAD, MDD, and PTSD. Participants were statistically significantly less likely to self-report having a diagnosis prior to the CTP (3.9%; $p < .001$), and less likely to meet the criteria for a past mental disorder based on the clinical interview criteria (12.5%) than would be expected based on the lifetime prevalence for the general population (33.1%[49]). Statistical comparisons between general population prevalence and the percentage of RCMP cadets screening positive based on self-report symptom measures must be interpreted with caution due to lack of statistical control of sociodemographic

covariates and variable assessment methods. The discrepancy between self-reported diagnostic history and clinical interview assessments of mental health history may be due to the former relying on participants having previously sought or received mental health support. The relatively higher current screening prevalence based on self-report symptom measures could be due to the sensitivity and specificity of such measures, potentially including false positives, and the clinical interviews more specific; however, the extant literature on estimating prevalence using clinical interviews remains mixed with regard to the specific shortcomings of such methods of assessment.[50–52] A parsimonious explanation according the clinical interview results with the self-report measure results is that the latter reflects transient stress reasonably associated (1) with relocating to Regina and/or (2) with starting the CTP.[53] The relocations often occur with fewer than 2 weeks' notice and sometimes with only 24 h notice.[25] Additional research is required to assess such speculation, but the current results directly contrast long-standing biases suggesting that mental health challenges among serving members result from not screening out recruits who have mental health challenges.[8] The current results appear to indicate newly recruited RCMP Cadets at pre-training have excellent mental health relative to serving RCMP, and comparable or better mental health than the general population, implying that subsequent mental health challenges[7] result from their service experiences.[4]

Consistent with expectations based on previous research with serving police[26,27] and the general population,[54] there were statistically significant differences such that female cadets self-reported higher scores than males on symptom measures for PTSD, MDD, GAD, and SAD, and were more likely to screen positive. There were no differences between males and females based on clinical interviews except that female cadets were less likely than males to meet the criteria for AUD. The differences across sex between the self-report results and the clinical results may be due to differences in measure sensitivity. In any case, the current results suggest that newly recruited female and male RCMP Cadets at pre-training have excellent mental health, relative to serving RCMP, and comparable or better mental health than the general population, and by extension suggest larger subsequent sex differences in mental health[7] may be influenced by myriad environmental variables.[26,27]

There were very few other statistically significant differences between demographic categories. There were statistically significant effects observed for age on symptom measures of AUD; and ethnicity on symptom measures of PTSD and panic disorder. Married participants reported slightly lower scores on symptom measures of AUD than single participants. The absence of other statistically significant differences based on marital status and age contrasts previous research,[7] but may be secondary to the low level of symptoms for the current sample. Participants from Eastern Canada reported statistically significantly lower GAD symptom scores than participants from Western and Atlantic Canada. The differences were small, but consistent with prior PSP research.[7] Unlike previous research,[7] there were no statistically significant differences based on education, which may be secondary to the relatively low level of symptoms in the current sample or the relatively high level of education, either of which would reduce the statistical power for detecting between-subjects effects.

Strengths and Limitations

The RCMP Study overall has several strengths and limitations detailed in the protocol paper.[24] The current paper's strengths include: (1) a large sample size; (2) multimodal symptom assessments that include self-report and clinical interviews; and (3) inter-rater reliability assessments for clinical interviews. The current paper also has several limitations including: (1) a sequential experimental cohort design that was interrupted due to COVID-19; (2) data collection including participants from pre- and post-COVID-19 onset; (3) voluntary participation creating an unknowable influence from self-selection biases; (4) screening tools that use different durations for symptom reporting periods; (5) uncommonly detailed assessments, which may produce intermittent response fatigue among participants and increase Type I error risks from spurious correlations[55]; and (6) potential for socially desirable responding. The limitations may be offset by the sample size, the multimodal assessments, the analyses, participants being able to complete RCMP Study tasks (including the Full Assessments) as part of paid time, the pre-registration of hypotheses, clearly repeated survey instructions, third-party assessors, and participant anonymity. In particular, the relatively low prevalence of mental disorders for cadets starting the CTP might be attributed to socially desirable reporting biases instead of self-selection biases, but the RCMP Study's emphasis on confidentiality, anonymity, and independence from the RCMP suggests against such an explanation. The a priori provision of expected results in the protocol paper[24] should help to mitigate Type I error risks and protect against equally problematic Type II error risks.[55]

Conclusion

The current results provide initial empirical evidence regarding the mental health status of RCMP Cadets beginning the CTP. The results indicate that RCMP Cadets beginning the CTP have generally excellent mental health based on self-report tools and clinical interviews. The results directly contrast long-standing problematic notions that mental disorders among serving military or PSP reflect inherent weaknesses or pre-existing mental health injuries among people who should have been pre-emptively excluded from service.[8] Instead, the current results indicate RCMP Cadets have mental health comparable to or better than the general public, implying

that mental health challenges evidenced among serving RCMP likely result from their service experiences. Ongoing mental health supports appear necessary to mitigate the substantial impact of service on mental health.

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Authors' Contributions

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References

1. Canadian Institute for Public Safety Research and Treatment (CIPSRT). Glossary of terms: a shared understanding of the common terms used to describe psychological trauma (version 2.1). Regina, SK: CIPSRT; 2019.
2. Public Safety Canada. Supporting Canada's public safety personnel: An action plan on post-traumatic stress injuries. In: PSaE, editor. Preparedness. Ottawa, ON: Government of Canada; 2019, p. 1-25.
3. Carleton RN, Afifi TO, Taillieu T, et al. Exposures to potentially traumatic events among public safety personnel in Canada. Can J Behav Sci. 2019;51:37-52.
4. Carleton RN, Afifi TO, Taillieu T, et al. Assessing the relative impact of diverse stressors among public safety personnel. Int J Environ Res Public Health. 2020;17:1-25.
5. American Psychiatric Association. Diagnostic and statistical manual of mental disorders. Washington, DC: American Psychiatric Association; 2013.
6. Carleton RN, Afifi TO, Taillieu T, et al. Anxiety-related psychopathology and chronic pain comorbidity among public safety personnel. J Anxiety Disord. 2018;55:48-55.
7. Carleton RN, Afifi TO, Turner S, et al. Mental disorder symptoms among public safety personnel. Can J Psychiatry. 2018;63:54-64.
8. Horswill SC, Carleton RN. Traumatic changes in human psyche: a brief history. In: Ricciardelli R, Bornstein S, Hall A, Carleton RN, editors. Handbook of posttraumatic stress: psychosocial, cultural, and biological perspectives. New York: Routledge/Taylor & Francis Group; 2021, p. 15-37.
9. Corrigan PW, Druss BG, Perlick DA. The impact of mental illness stigma on seeking and participating in mental health care. Psychol Sci Publ Int. 2014;15(2):37-70.
10. Krakauer RL, Stelnicki AM, Carleton RN. Examining mental health knowledge, stigma, and service use intentions among public safety personnel. Front Psychol. 2020;11:949.
11. Ricciardelli R, Carleton RN, Mooney T, Cramm H. "Playing the system": structural factors potentiating mental health stigma, challenging awareness, and creating barriers to care for Canadian public safety personnel. Health (N Y). 2020;24(3):259-278.
12. Inslicht SS, McCaslin SE, Metzler TJ, et al. Family psychiatric history, peritraumatic reactivity, and posttraumatic stress symptoms: a prospective study of police. J Psychiatr Res. 2010;44(1):22-31.
13. Otte C, Neylan TC, Pole N, et al. Association between childhood trauma and catecholamine response to psychological stress in police academy recruits. Biol Psychiatry. 2005;57:27-32.
14. Anderson GS, Di Nota PM, Groll D, Carleton RN. Peer support and crisis-focused psychological interventions designed to mitigate post-traumatic stress injuries among public safety and frontline healthcare personnel: a systematic review. Int J Environ Res Public Health. 2020;17:7645.
15. Di Nota PM, Bahji A, Groll D, Carleton RN, Anderson GS. Proactive psychological programs designed to mitigate post-traumatic stress injuries among at-risk workers: a systematic review and meta-analysis. BMC Syst Rev. 2021;10:126.
16. Zylberberg A, Dehaene S, Roelfsema PR, Sigman M. The human turing machine: a neural framework for mental programs. Trends Cogn Sci. 2011;15(7):293-300.

17. Carleton RN, Korol S, Mason JE, et al. A longitudinal assessment of the road to mental readiness training among municipal police. Cogn Behav Ther. 2018;47(6):508-528.
18. Szeto A, Dobson KS, Knaak S. The road to mental readiness for first responders: a meta-analysis of program outcomes. Can J Psychiatry. 2019;64(1_suppl):18S-29S.
19. Wild J, El-Salahi S, Esposti MD. The effectiveness of interventions aimed at improving well-being and resilience to stress in first responders. Eur Psychol. 2020;25:252-271.
20. Leppin AL, Gionfriddo MR, Sood A, et al. The efficacy of resilience training programs: a systematic review protocol. Syst Rev. 2014;3:20.
21. Robertson IT, Cooper CL, Sarkar M, Curran T. Resilience training in the workplace from 2003 to 2014: a systematic review. J Occup Organ Psychol. 2015;88(3):533-562.
22. Carleton RN, Afifi TO, Turner S, et al. Mental health training, attitudes towards support, and screening positive for mental disorders. Cogn Behav Ther. 2020;49:55-73.
23. Fikretoglu D, Liu A, Nazarov A, Blackler K. A group randomized control trial to test the efficacy of the road to mental readiness (r2mr) program among Canadian military recruits. BMC Psychiatry. 2019;19(1):326.
24. Carleton RN, Krätzig GP, Sauer-Zavala S, et al. The Royal Canadian Mounted Police (RCMP) study: protocol for a prospective investigation of mental health risk and resiliency factors. Health Promot Chronic Dis Prev Can. 2022;42:319-333.
25. Hembroff CC, Krätzig GP. A 5-year perspective of attrition in relation to employment equity. Royal Canadian Mounted Police: Research and Strategic Partnerships; 2020.
26. Korol S, Vig KD, Teale Sapach MJN, Asmundson GJG, Carleton RN. Demographic and cognitive risk factors for police mental disorder symptoms. Police J. 2019;94:1-18.
27. Angehrn A, Vig KD, Mason JE, et al. Sex differences in mental disorder symptoms among Canadian police officers: the mediating role of social support, stress, and sleep quality. Cogn Behav Ther. 2021;51:1-18.
28. Butcher JN, Graham JR, Ben-Porath YS, Tellegen A, Dahlstrom WG, Kaemmer B. MMPI-2: manual for administration, scoring, and interpretation (Rev. Ed.). Minneapolis, MN: University of Minnesota; 2001.
29. Butcher JN. A beginner's guide to the MMPI-2. Washington, DC: American Psychological Association; 2011.
30. The PTSD checklist for DSM-5 (PCL-5). Scale available from the National Center for PTSD. 2013. National Center for PTSD, https://www.ptsd.va.gov
31. Kroenke K, Spitzer RL, Williams JB. The PHQ-9: validity of a brief depression severity measure. J Gen Intern Med. 2001;16(9):606-613.
32. Shear MK, Brown TA, Barlow DH, et al. Multicenter collaborative panic disorder severity scale. Am J Psychiatry. 1997;154(11):1571-1575.
33. Spitzer RL, Kroenke K, Williams JB, Lowe B. A brief measure for assessing generalized anxiety disorder: the GAD-7. Arch Intern Med. 2006;166(10):1092-1097.
34. Carleton RN, Collimore KC, Asmundson GJG, McCabe RE, Rowa K, Antony MM. Refining and validating the social interaction anxiety scale and the social phobia scale. Depress Anxiety. 2009;26(2):E71-E81.
35. Saunders JB, Aasland OG, Babor TF, Delafuente JR, Grant M. Development of the alcohol-use disorders identification test (audit)—WHO collaborative project on early detection of persons with harmful alcohol-consumption. Addiction. 1993;88(6):791-804.
36. MacIntosh HB, Séguin G, Abdul-Ramen I, Randy M. Première traduction française PCL-5-LEC, civilian checklist for PTSD, DSM5. Montreal, QC: McGill; 2015.
37. Ashbaugh AR, Houle-Johnson S, Herbert C, El-Hage W, Brunet A. Psychometric validation of the English and French versions of the posttraumatic stress disorder checklist for DSM-5 (PCL-5). PLoS ONE. 2016;11(10):e0161645.
38. Blevins CA, Weathers FW, Davis MT, Witte TK, Domino JL. The posttraumatic stress disorder checklist for DSM-5 (PCL-5): development and initial psychometric evaluation. J Trauma Stress. 2015;28(6):489-498.
39. Bovin MJ, Marx BP, Weathers FW, et al. Psychometric properties of the PTSD checklist for diagnostic and statistical manual of mental disorders-fifth edition (PCL-5) in veterans. Psychol Assess. 2016;28(11):1379-1391.
40. Manea L, Gilbody S, McMillan D. A diagnostic meta-analysis of the patient health questionnaire-9 (PHQ-9) algorithm scoring method as a screen for depression. Gen Hosp Psychiatry. 2015;37:67-75.
41. Shear MK, Rucci P, Williams J, et al. Reliability and validity of the panic disorder severity scale: replication and extension. J Psychiatr Res. 2001;35(5):293-296.
42. Swinson RP. The GAD-7 scale was accurate for diagnosing generalised anxiety disorder. Evid Based Med. 2006;11(6):184.
43. Gache P, Michaud P, Landry U, et al. The alcohol use disorders identification test (AUDIT) as a screening tool for excessive drinking in primary care: reliability and validity of a French version. Alcohol Clin Exp Res. 2005;29(11):2001-2007.
44. Babor TF, Higgins-Biddle J, Saunders JB, Monteiro MG. Audit the alcohol use disorders identification test: Guidelines for use in primary care. Geneva, Switzerland: World Health Organization; 2001.
45. Sheehan DV, Lecrubier Y, Harnett-Sheehan K, et al. The mini-international neuropsychiatric interview (M.I.N.I.): the development and validation of a structured diagnostic psychiatric interview for DSM-IV and ICD-10. J Clin Psychiatry. 1998;59:22-33.
46. Sheehan DV, Lecrubier Y, Harnett-Sheehan K, et al. Reliability and validity of the mini international neuropsychiatric interview (M.I.N.I.): according to the SCID-P. Eur Psychiatry. 1997;12:232-241.
47. Lecrubier Y, Sheehan D, Weiller E, et al. The mini international neuropsychiatric interview (M.I.N.I.) a short diagnostic structured interview: reliability and validity according to the CIDI. Eur Psychiatry. 1997;12:224-231.

48. Cohen J. Statistical power analysis for the behavioral sciences. Mawah, NJ: Lawrence Erlbaum; 1988.
49. Statistics Canada. Rates of selected mental or substance use disorders, lifetime and 12 month, Canada, household population 15 and older, 2012. Ottawa, ON: Government of Canada; 2012.
50. Eaton WW, Neufeld K, Chen LS, Cai G. A comparison of self-report and clinical diagnostic interviews for depression: diagnostic interview schedule and schedules for clinical assessment in neuropsychiatry in the Baltimore epidemiologic catchment area follow-up. Arch Gen Psychiatry. 2000;57(3):217-222.
51. Berger W, Coutinho ES, Figueira I, et al. Rescuers at risk: a systematic review and meta-regression analysis of the worldwide current prevalence and correlates of PTSD in rescue workers. Soc Psychiatry Psychiatr Epidemiol. 2012;47:1001-1011.
52. Wu Y, Levis B, Ioannidis JPA, Benedetti A, Thombs BD. Probability of major depression classification based on the SCID, CIDI, and MINI diagnostic interviews: a synthesis of three individual participant data meta-analyses. Psychother Psychosom. 2021;90:28-40.
53. Riemer JW. Job relocation, sources of stress, and sense of home. Community Work Fam. 2010;3:205-217.
54. Eaton NR, Keyes KM, Krueger RF, et al. An invariant dimensional liability model of gender differences in mental disorder prevalence: evidence from a national sample. J Abnorm Psychol. 2012;121(1):282-288.
55. Osborne JW. Best practices in quantitative methods. Los Angeles: Sage Publications Inc.; 2008. p. 596.
56. Statistics Canada. Table: 13-10-0465-01 (formerly Cansim 105-1101). Government of Canada; 2014.
57. Hinz A, Klein AM, Brahler E, et al. Psychometric evaluation of the generalized anxiety disorder screener GAD-7, based on a large German general population sample. J Affect Disord. 2017;210:338-344.
58. Liu Y, Wang J. Validity of the patient health questionnaire-9 for DSM-IV major depressive disorder in a sample of Canadian working population. J Affect Disord. 2015;187:122-126.
59. Patten SB, Williams JV, Lavorato DH, Wang JL, McDonald K, Bulloch AG. Descriptive epidemiology of major depressive disorder in Canada in 2012. Can J Psychiatry. 2015;60(1):23-30.
60. Government of Canada. The human face of mental health and mental illness in Canada. 2006 / Editorial Board: Public Health Agency of Canada, Mood Disorders Society of Canada, Health Canada, Statistics Canada, Canadian Institute for Health Information. Ottawa, Ontario: Public Health Agency of Canada; 2006.
61. American Psychiatric Association. Diagnostic and statistical manual of mental disorders. Washington, DC: American Psychiatric Association; 2022.
62. MacKenzie MB, Fowler KF. Social anxiety disorder in the Canadian population: exploring gender differences in sociodemographic profile. J Anxiety Disord. 2013;27(4):427-434.