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A Canadian national study of provincial and territorial correctional workers' suicidal ideation, plans, and attempts

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Abstract

Correctional workers (CWs) endure several operational stressors (e.g., exposures to potentially psychologically traumatic events) and organisational stressors (e.g., shift work, staff shortages), which are associated with positive screens for mental disorders and self-reports of suicidal behaviours and thus urgently warrant further inquiry. The Canadian Provincial and Territorial Correctional Worker Mental Health and Well-Being Study (CWMH) used an online survey to collect data from Canadian correctional service organisations across all 13 provinces and territories. This national Canadian study investigates suicidal behaviours among CWs across diverse occupational roles and provincial and territorial jurisdictions (n = 3740, 50.1% female). The results estimated prevalence proportions for self-reported past-year and lifetime suicidal thoughts, planning, and attempts across the 13 Canadian provincial and territorial correctional systems, with the exceptions of past-year suicidal planning in Alberta, Newfoundland and Labrador, New Brunswick, and Yukon where jurisdictional considerations and requests precluded the inclusion of select questions. Substantial proportions of participants reported past-year or lifetime suicidal ideation (i.e., 9.1%, 29.2%, respectively), planning (i.e., 4.1%, 14.7%, respectively), or attempts (i.e., 0.8%, 7.2%, respectively). Sociodemographic variables (i.e., sex, age, marital status, total years of service, occupational category) were associated with past-year and lifetime suicidal behaviours. Findings provide opportunities for future research and can inform tailored efforts by clinicians, service providers, and organisational leaders to support proactive interventions and treatments, including supporting the partners and families of CWs, fostering social support networks, and improving access to timely mental health treatment.

KEYWORDS
correctional workers, mental disorders, posttraumatic stress injuries, public safety personnel, suicide

1 | INTRODUCTION

Correctional workers (CWs) are Public Safety Personnel (PSP) responsible for the safety, care, custody, control, and rehabilitation of people in prisons and in the community under the supervision of correctional services. Decades of research provide early and recent insights into CW experiences with occupational stress, burnout, and job dissatisfaction (Carlson & Thomas, 2006; Cheek & Miller, 1983; Cullen et al., 1985; Freeman & Johnson, 1982; Ricciardelli & Power, 2020; Triplett et al., 1996; Whitehead & Lindquist, 1986), and ways to improve CW mental health outcomes (Johnston et al., 2022b). CW workplaces are often described as extremely stressful and harmful for mental health and well-being because challenging relationships with incarcerated persons and their families (Genest et al., 2021; Ricciardelli, 2019; Ricciardelli, Carleton, et al., 2018, Ricciardelli, Czarnuch, et al., 2020; Ricciardelli & Power, 2020) are compounded by exposures to potentially psychologically traumatic events (PPTEs; Ricciardelli, Taillieu et al., 2022) and interact with several other occupational stressors (e.g., shift work, long hours, pervasive unpredictability of threat; Carleton et al., 2019, 2020a, 2020b, 2020c; Crawley, 2013; Cullen et al., 1985; Kunst et al., 2009; Ricciardelli, Carleton, et al., 2020, Ricciardelli, Czarnuch, et al., 2020; Sui et al., 1994; Triplett et al., 1996).

The complex interactions of mental health disorder symptoms (i.e., substance use disorders) and/or other challenging social and relational factors such as interpersonal conflict, child abuse, low socio-economic status, bereavement, bullying, and/or prison operational factors such as exposure to violence, harassment, abuses, suicide, threats or other unhealthy workplace conditions have been found to aggravate CWs' tendencies towards suicidal thoughts and behaviours (Carleton et al., 2019; Genest et al., 2021; Johnston & Ricciardelli, 2023; Lerman et al., 2022; Turner et al., 2018). For example, Genest et al. (2021) found CWs' experiences with marital or family problems and coinciding difficulties at work (i.e., bullying) sometimes intensified or precipitated suicidal thoughts and behaviours. In their qualitative survey research of Canadian provincial and territorial CWs, Johnston and Ricciardelli (2023) found occupational environments laced with a lack of social support and entrenched mental health stigma (i.e., social silence on the realities of suicide in correctional work) indicated a need for correctional organisations to normalize mental health discussion and bolster peer support resources available to struggling staff.

Research examining CWs collectively across occupational categories and jurisdictions continues to evidence compromised mental health, with up to 54.6% screening positive for mental disorders (Carleton, Afifi, Taillieu, et al., 2018; Carleton, Afifi, Turner, Taillieu, Duranceau, et al., 2018), which appears higher when compared to the Canadian general population (Statistics Canada, 2012). There is also evidence of potentially important differences in mental health among CWs based on occupational and sociodemographic categories such that persons working in institutional governance (e.g., superintendents, correctional managers, deputy superintendents), as institutional correctional officers (COs), or as probational officers, and those from 40 to 49 years old or who were separated or divorced, all appear more likely to screen positive for one or more mental disorders (Carleton et al., 2020a, Carleton et al., 2020b, 2020c).

The mental disorder symptoms among CWs and PSP more broadly may increase their risk for death by suicide (Stanley et al., 2016). The risk of death by suicide among PSP may be further increased by evidence of lower fear of death (Van Orden et al., 2010), strained social supports (Van Orden et al., 2010; Vig et al., 2020), sleep disruptions (Bernert et al., 2015; Vallieres et al., 2014), and a child abuse history (Turner et al., 2018). In the United States, CWs die by suicide twice as often as police officers (Peittaro, 2015; Stack & Tsoudis, 1997) and three times as often as the general population (Milgram & Velez, 2009). CWs in the United States also have a higher age-adjusted risk of death by suicide ($p < 0.05$) than the general population, with women CWs at twice the risk of death by suicide than women in other workplaces (Violanti, 2017). Despite international evidence of increased risk among PSP, limited research has focused on nuanced understandings of social contexts (e.g., organisational mental health stigma) underpinning suicidal behaviours among Canadian CWs (Carleton et al., 2018a, Carleton et al., 2020b; Johnston et al., 2022a; Johnston & Ricciardelli, 2023; Stanley et al., 2016; Turner et al., 2018).

Canadian PSP report past-year and lifetime suicidal ideation (10.1%, 27.8%), planning (4.1%, 13.3%), and attempts (0.4%, 4.6%; Carleton, Afifi, Turner, Taillieu, LeBouthillier, et al., 2018) at more than twice the Canadian general population past-year and lifetime prevalence proportions for suicidal ideation (3.6%, 13.3%), planning (1.3%, 4.6%) and attempts (0.6%, 3.5%; Sareen et al., 2016; Statistics Canada, 2017). Among PSP sectors, CW participants aggregated into a single occupational category evidenced past-year and lifetime suicidal ideation (11.0%, 35.2%), planning (4.8%, 20.1%), and attempts (0.4%, 8.1%; Carleton, Afifi, Turner, Taillieu, LeBouthillier, et al., 2018). Women CWs also reported more lifetime suicidal behaviours than men CWs (Carleton, Afifi, Turner, Taillieu, LeBouthillier, et al., 2018).

Importantly, the initial results for mental health outcomes of Canadian CWs (Carleton, Afifi, Turner, Taillieu, LeBouthillier, et al., 2018) did not distinguish persons working in provincial and territorial correctional services (i.e., serving people remanded in custody as well as people sentenced to a maximum of 2 years less one day; Ricciardelli, 2019) from persons working in federal correctional services, and did not assess for potential differences based on occupational categories (e.g., COs, Administrators, Youth Correctional Workers) or occupational environments (e.g., Community, Headquarters, Institutional). Subsequent research on suicidal behaviours among samples of provincial CWs has evidenced similarly problematic proportions of suicidal behaviours and identified potentially important inter-provincial differences; for example, CWs in Ontario have self-reported past-year or lifetime suicidal ideation (7.0%, 26.6%), planning (2.6%, 11.9%), and attempts (n/a, 5.2%) with prevalence estimates considerably higher than general population estimates and specific sociodemographic variables (i.e., sex, age, education, and marital status) associated with past-year and lifetime suicidal behaviours (Carleton et al., 2022). Comparatively, CWs in Manitoba (MB) have self-reported past-year or lifetime suicidal ideation (15.1%, 34.8%), planning (7.7%, 20.2%), and attempts (2.0%, 9.6%; Ricciardelli, McKendy et al., 2022), with positive mental health screens for all mental disorders being associated with statistically significantly increased odds of lifetime suicidal ideation, and positive screens for most mental disorders being associated with past year suicidal ideation. These studies also evidenced potentially complex differences among CWs based on occupational and sociodemographic categories such that, for example, institutional COs, women, and separated/divorced/widowed participants appeared more likely to self-report a lifetime suicide attempt (Carleton et al., 2022; Ricciardelli, McKendy et al., 2022). That said, interprovincial comparisons and nuanced assessments of interactions with potential occupation and sociodemographic variables were limited by sample sizes and available data.

Suicidal behaviours (i.e., ideation, planning, attempts) involve multifactorial phenomena; thus, there are several ways to theorize these experiences among CWs. The Interpersonal-Psychological Theory of Suicide is one way to explain suicidal behaviours of CWs, around themes of perceived burdensomeness, lost sense of belonging (i.e., by feeling unsupported by management), a feeling of hopelessness, a progressively reduced fear of death, and capacity for a lethal attempt (Genest et al., 2021; Van Orden et al., 2010). Within the work stress literature, the Job Demands Resources model considers job demands as 'physical, social, or organisational aspects of the job that require sustained physical or mental effort and are associated with certain physiological and psychological costs' (Demerouti et al., 2001, p. 501). Applying this model, Otsuka et al. (2016) found in their study of Japanese workers ($n = 42{,}499$; 34,882 males and 7617 females) that most job demands and job resources had significant associations with the risk of suicidal ideation in both sexes.

The current study was designed to build on the previous research by providing pan-Canadian estimates of suicidal behaviours (i.e., ideation, planning, attempts) among a diverse sample of CWs working in the Canadian provincial and territorial correctional systems stratified by occupational category, jurisdiction, sociodemographic variables, and whether the data were collected before or after the onset of COVID-19. To our knowledge, a national study of this kind has never been published, providing further evidence of the pronounced impacts of mental health, stress, and suicidal thoughts and behaviours on CWs as they relate to key variables, including the COVID-19 pandemic. Moreover, we desired replicability in results to better understand the scope of the problem of suicide among CWs. The assessment of COVID-19 is based on negative impacts on the health of essential workers who, like CWs, could not stop working (Asmundson et al., 2020; García-Vivar et al., 2023; Heber et al., 2020). Specifically, studies found higher levels of COVID-19 within correctional settings than in community settings (Lemasters et al., 2020) and higher levels of COVID-19 incidence among correctional staff than in the general population (Nowotny et al., 2021) or prisoner population (Ward et al., 2021), suggesting correctional facilities were high-risk places to work. Overall, we hypothesised, in alignment with past studies, CWs would have prevalence of suicide behaviours higher than the general population and comparable or greater than other public safety professionals. More specifically, and based on previous research results (Carleton, Afifi, Turner, Taillieu, LeBouthillier, et al., 2018; Carleton et al., 2022; Ricciardelli, McKendy et al., 2022), we hypothesised higher prevalence of suicidal behaviours among: (1) CWs than would be expected for the general population; (2) CWs working as COs or community operational roles (e.g., probation officers) or institutional operational roles (e.g., programme officers) than CWs in other roles; (3) women compared to men working as CWs; and (4) CWs who participated after the onset of the COVID-19 pandemic compared to before the pandemic due to pandemic-related stressors (García-Vivar et al., 2023; Heber et al., 2020; Lake et al., 2022). We discuss how findings provide opportunities for future research and can inform tailored efforts by clinicians, service providers, and organisational leaders to support proactive interventions and treatments, including supporting the partners and families of CWs, fostering social support networks, and improving access to timely mental health treatment.

2 | METHODS

2.1 | Data and sample

Data were derived from the Canadian Provincial and Territorial CW Mental Health and Well-Being Study (CWMH). The multi-year CWMH used an online survey to collect data from Canadian correctional service organisations across all 13 provinces and territories. The survey link was distributed by correctional services employers and/or unions as well as information about informed consent and study aims/objectives. Core questionnaire content was the same for all surveys to facilitate regional comparisons. Data collection windows varied across the 13 regions because of different internal research processes and procedures. The spring 2020 onset of the COVID-19 pandemic in Canada required data collection to be paused for some provinces and territories until the fall of 2021, but allowed for comparisons of data from before and after the pandemic onset.

We were unable to compute a traditional response rate as emails informing participants of the survey could be forwarded, and were sent from two different organisational listservs, which means that there was no way to definitively identify a sampling frame. In addition, only participants with at least one valid response for at least one of the mental disorder self-report measures were included, which also created sample size variability in the prevalence reporting. The majority of CWs who logged into the survey ($n = 5212$) completed the questions on mental disorders and suicide behaviours required for the current study ($n = 3740$; or 71.8% of those who logged into the survey). Data were collected prior to the onset of the COVID-19 pandemic for Ontario (ON; i.e., December 2017–July 2018, $n = 1084$), Manitoba (MB; i.e., February 2019–June 2019, $n = 602$), Saskatchewan (SK; i.e., May 2019–January 2020, $n = 605$), Nova Scotia (NS; i.e., July 2019–May 2020, $n = 156$), New Brunswick (NB; i.

e., September 2018–April 2019, $n = 27$), Newfoundland and Labrador (NL; i.e., February 2018–April 2019, $n = 69$), and Yukon (YK; i.e., December 2018–February 2020, $n = 47$). Data were collected after the COVID-19 pandemic onset for Alberta (AB; i.e., September 2020 to –March 2022, $n = 395$), Quebec (QC; i.e., October 2021–December 2022, $n = 241$), British Columbia (BC; i.e., May 2022–December 2022, $n = 422$), Prince Edward Island (PEI; i.e., June 2022–November 2022, $n = 63$), Northwest Territories (NT; i.e., March 2023–June 2023, $n = 18$), and Nunavut (NU; i.e., March 2023–June 2023, $n = 11$).

Participants took approximately an hour to finish the survey, and a random access code was assigned to each participant to facilitate convenient exiting and returning to the survey while maintaining anonymity. We informed participants to contact their Employee Assistance Program or alternative supports if they had thoughts of 'being better off dead', of harming themselves, or of suicide. We also developed protocols if participants required immediate help; protocols included a website listing crisis centres, calling 911, or visiting their nearest organisation for emergency intervention. Participants were informed they 'matter and there are people who want to help'. We obtained ethical approval from Research Ethics Boards at the University of Regina (file #2017-098) and Memorial University of Newfoundland (file #20201330-EX).

2.2 | Outcome measures

Past-year and lifetime suicidal behaviours were assessed using a series of dichotomous (yes/no) questions identical to the questions used in previous research with PSP (Carleton, Afifi, Turner, Taillieu, LeBouthillier, et al., 2018) and related groups (Stelnicki et al., 2020). Item content was intentionally aligned with precedent suicide items put forth by Statistics Canada (Statistics Canada, 2013, 2016). Past-year and lifetime suicidal behaviours were assessed by asking: 'Have you ever seriously contemplated suicide?' (suicide ideation), 'Have you ever made a plan to attempt suicide?' (suicide plan), and 'Have you ever attempted suicide?' (suicide attempt). Those who replied 'yes' were then asked 'has this happened in the past 12 months?'. Past-year suicidal planning and attempts were not assessed in AB, NL, NB, and YK due to jurisdictional considerations and requests that precluded the inclusion of select questions, necessarily excluding those jurisdictions from the associated analyses.

2.3 | Sociodemographic variables

Sociodemographic variables included sex (e.g., male, female), age (i.e., 20–29 years, 30–39 years, 40–49 years, 50–59 years, 60 years and older), marital status (i.e., married/remarried/common-law, single, separated/divorced/widowed), education (i.e., less than 4 years college/university degree, some post-secondary education [less than a 4 years college/university degree], 4 years college/university degree or higher), total household income (i.e., less than \$80,000, \$80,000 or more), and total years of service (i.e., less than 4 years, 4–9 years, 10–15 years, more than 15 years). Participating CWs in SK were not asked to self-report their sex. We categorised CW occupational categories as COs, Institutional Operational (e.g., psychologists, counsellors, social workers, nurses, programme officers); Institutional Management/Administration (e.g., superintendent, assistant superintendent, bookkeeping, payroll, administrative assistants), Community Operational (e.g., probation officers, programme officers), and Headquarters Administrative, as well as Youth CWs where relevant as not all provinces and territories position youth facilities under the same ministry/department as adult correctional services.

2.4 | Statistical analyses

First, we computed descriptive statistics to examine sociodemographic characteristics, as well as the prevalence of suicidal behaviours among the total sample and stratified by sociodemographic variables and by data collection period (i.e., before and after COVID-19 onset). Second, we computed logistic regression models to examine the association between sociodemographic variables and suicide-related behaviours. Third, we computed logistic regression models to assess for differences in the prevalence of suicide-related behaviours across provinces and territories. We tested for differences across regions by changing the reference categories in the logistic regression models. We were unable to assess past-year suicide plans and past-year suicide attempts stratified by sociodemographic variables and provincial/territorial region due to low cell count sizes. Fourth, we computed logistic regression models to assess for differences in the prevalence of suicide-related behaviours between regions where data collection occurred prior to (i.e., Ontario, MB, NB, NL, YK, SK, and NS) or after the COVID-19 onset (i.e., PEI, AB, BC, QC, Northwest Territories, and Nunavut). We used SPSS software (v. 28) to conduct complete case analyses. We considered results at $p < 0.05$ as statistically significant.

3 | RESULTS

Table 1 presents the distribution of sociodemographic variables for each region and the entire sample. Not all participants were presented with all of the same questions due to jurisdictional considerations around questions to be asked and participants were not required to answer every question; as such, there are differences in the available sample size for each analysis. Assessing the total available sample data, there are substantial proportions of participants who self-reported past-year suicidal ideation ($n = 308/3368$; 9.1%), planning ($n = 122/3368$; 4.1%), or attempts ($n = 26/3368$; 0.8%), as well as lifetime suicidal ideation ($n = 1004/3443$; 29.2%), planning ($n = 504/3438$; 14.7%), or attempts ($n = 247/3434$; 7.2%); however, the proportions of participants self-reporting past-year suicidal planning or attempts were too small to present stratified by sociodemographic groups. Note that all participants reporting a past-

TABLE 1 Associations between sociodemographic covariates and suicidal behaviours.

		Suicidal behaviours							
		Past-year		Lifetime					
		Ideation		Ideation		Plan		Attempt	
Sociodemographic covariates	Total sample	% (*n*)	OR (95% CI)	% (*n*)	OR (95% CI)	% (*n*)	OR (95% CI)	% (*n*)	OR (95% CI)
Sex (*n* = 3099)[a]									
Male	49.9 (1546)	10.2 (142)	1.00	30.4 (435)	1.00	14.9 (213)	1.00	4.9 (70)	1.00
Female	50.1 (1553)	7.9 (110)	0.76 (0.58, 0.98)*	27.1 (386)	0.85 (0.73, 1.00)	14.4 (205)	0.96 (0.78, 1.18)	8.5 (120)	1.79 (1.32, 2.43)***
Age (*n* = 3677)									
19–29 years	12.4 (456)	9.4 (39)	1.00	25.9 (110)	1.00	12.7 (54)	1.00	8.5 (36)	1.00
30–39 years	28.3 (1042)	9.4 (87)	1.00 (0.67, 1.49)	30.4 (290)	1.25 (0.97, 1.62)	13.5 (128)	1.07 (0.76, 1.50)	5.5 (52)	0.63 (0.40, 0.98)*
40–49 years	30.9 (1135)	10.5 (107)	1.13 (0.77, 1.66)	31.6 (330)	1.32 (1.03, 1.71)*	16.6 (173)	1.37 (0.98, 1.90)	7.7 (80)	0.90 (0.60, 1.35)
50–59 years	22.9 (841)	8.5 (65)	0.89 (0.59, 1.35)	29.9 (233)	1.22 (0.94, 1.60)	15.8 (123)	1.29 (0.92, 1.82)	8.2 (64)	0.97 (0.63, 1.49)
60 years and older	5.5 (203)	4.2 (8)	0.42 (0.19, 0.92)	16.6 (32)	0.57 (0.37, 0.88)*	11.4 (22)	0.88 (0.52, 1.50)	6.2 (12)	0.72 (0.36, 1.41)
Marital status (*n* = 3684)									
Married/remarried/ common-law	69.1 (2547)	7.5 (172)	1.00	27.3 (641)	1.00	13.2 (309)	1.00	6.3 (147)	1.00
Single	18.7 (690)	10.7 (66)	1.48 (1.10, 2.00)**	30.0 (191)	1.14 (0.94, 1.38)	15.1 (96)	1.17 (0.91, 1.50)	7.7 (49)	1.25 (0.89, 1.74)
Separated/divorced/ widowed	12.1 (447)	15.3 (62)	2.23 (1.64, 3.05)***	36.3 (150)	1.52 (1.22, 1.89)***	20.6 (85)	1.71 (1.31, 2.23)***	10.2 (42)	1.69 (1.18, 2.42)**
Education (*n* = 3594)									
High school graduate or less	9.4 (337)	11.1 (34)	1.00	30.1 (95)	1.00	14.6 (46)	1.00	8.3 (26)	1.00
Some post-secondary education	44.6 (1602)	10.8 (155)	0.97 (0.66, 1.44)	31.6 (465)	1.08 (0.83, 1.40)	15.7 (231)	1.10 (0.78, 1.54)	8.0 (118)	0.97 (0.62, 1.50)
University/college degree or higher	46.0 (1655)	7.1 (107)	0.62 (0.41, 0.93)*	26.5 (404)	0.84 (0.64, 1.09)	13.3 (203)	0.90 (0.64, 1.28)	5.8 (89)	0.69 (0.44, 1.08)
Years of service (*n* = 3672)									
Less than 4 years	17.1 (629)	6.2 (35)	1.00	25.3 (146)	1.00	10.4 (60)	1.00	7.6 (44)	1.00
4–9 years	23.6 (868)	11.5 (88)	1.98 (1.32, 2.97)***	31.6 (247)	1.37 (1.07, 1.74)*	15.5 (121)	1.58 (1.14, 2.20)**	7.3 (57)	0.96 (0.63, 1.44)
10–15 years	21.8 (802)	10.7 (77)	1.83 (1.20, 2.77)**	30.3 (225)	1.28 (1.00, 1.64)*	14.6 (108)	1.47 (1.05, 2.05)*	7.2 (53)	0.93 (0.62, 1.41)
More than 15 years	37.4 (1373)	8.3 (105)	1.37 (0.92, 2.04)	29.1 (374)	1.21 (0.97, 1.51)	16.3 (210)	1.68 (1.24, 2.28)**	6.9 (89)	0.90 (0.62, 1.31)
Total household income (*n* = 2988)[b]									
Less than $80,000	25.3 (756)	12.3 (85)	1.00	33.0 (232)	1.00	17.8 (125)	1.00	8.8 (62)	1.00
$80,000 or more	74.7 (2232)	8.5 (172)	0.66 (0.50, 0.87)**	29.0 (600)	0.83 (0.69, 0.998)*	14.6 (302)	0.79 (0.63, 0.998)*	6.7 (139)	0.75 (0.55, 1.02)
Occupational group (*n* = 3711)									
Correctional officer	48.6 (1805)	10.7 (174)	1.00	31.0 (515)	1.00	15.4 (256)	1.00	6.4 (106)	1.00

(Continues)

TABLE 1 (Continued)

Sociodemographic covariates	Total sample	Suicidal behaviours: Past-year Ideation % (*n*)	OR (95% CI)	Lifetime Ideation % (*n*)	OR (95% CI)	Plan % (*n*)	OR (95% CI)	Attempt % (*n*)	OR (95% CI)
Community management/ administrative	5.6 (207)	4.8 (9)	0.42* (0.21, 0.84)	18.4 (35)	0.50 (0.34, 0.74)***	10.5 (20)	0.65 (0.40, 1.04)	8.0 (15)	1.27 (0.72, 2.23)
Community operational	17.9 (664)	8.5 (51)	0.77 (0.56, 1.07)	27.3 (167)	0.84 (0.68, 1.03)	11.6 (71)	0.72 (0.54, 0.95)*	7.2 (44)	1.14 (0.79, 1.63)
Headquarters administrative	2.7 (100)	6.9 (6)	0.62 (0.27, 1.44)	27.8 (25)	0.86 (0.53, 1.37)	11.1 (10)	0.69 (0.35, 1.34)	7.8 (7)	1.23 (0.56, 2.74)
Institutional management/ administrative	15.5 (576)	7.4 (38)	0.66* (0.46, 0.95)	26.9 (143)	0.82 (0.66, 1.02)	14.7 (78)	0.95 (0.72, 1.25)	8.5 (45)	1.36 (0.94, 1.95)
Institutional operational	7.9 (294)	7.4 (20)	0.67 (0.41, 1.08)	31.6 (86)	1.03 (0.78, 1.36)	20.6 (56)	1.42 (1.03, 1.96)*	8.8 (24)	1.42 (0.89, 2.25)
Youth correctional worker	1.8 (65)	15.0 (9)	1.47 (0.71, 3.04)	43.3 (26)	1.70 (1.01, 2.87)*	18.3 (11)	1.23 (0.63, 2.40)	6.7 (4)	1.04 (0.37, 2.94)

[a]Information on sex was not collected in Saskatchewan.

[b]Information on total household income was not collected in British Columbia, Prince Edward Island, and the Northwest Territories.

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

year suicide behaviour are also included in the lifetime prevalence estimate for that specific outcome.

Table 1 also presents the relationships between sociodemographic variables and suicidal behaviours. There were statistically significant differences in self-reported past-year suicidal ideation between several categories. There were also several statistically significant differences in self-reported lifetime suicidal behaviours between several categories. Participants who were married, remarried, or in a common-law relationship were generally less likely to self-report past-year suicidal ideation or lifetime suicidal behaviours. Participants with more years of service were generally more likely to self-report past-year suicidal ideation or lifetime suicidal behaviours. Other differences between categories were less consistent across past-year suicidal ideation or lifetime suicidal behaviours.

Table 2 presents the prevalence proportions for lifetime suicidal behaviours stratified by provinces and territories. Participants from Ontario comprised the largest portion of the overall sample; as such, Ontario was used as the reference group. There appears to have been a trend for participants from AB, SK, and MB to report proportionally more suicidal behaviours than participants from Ontario as well as other provinces and territories; however, relatively small sample sizes from some provinces may have obscured other important geographic differences. Table 2 also presents the results of comparing the prevalence proportions of lifetime suicidal behaviours from provinces and territories where data collection occurred before the COVID-19 pandemic onset (i.e., Ontario, MB, NB, NL, YK, SK, NS) to those where data collection occurred after the COVID-19 pandemic onset (i.e., PEI, AB, BC, QC, Northwest Territories, and Nunavut). There were no statistically significant differences between provinces and territories where data collection occurred before versus after the COVID-19 pandemic onset with respect to prevalence proportions of suicidal ideation, planning, or attempts.

4 | DISCUSSION

The current study is the first national effort to provide aggregated and stratified prevalence estimates for suicidal ideation, planning, and attempts among CWs from each of the 13 Canadian provincial and territorial correctional services. The results were somewhat consistent with our hypotheses and previous research results (Carleton, Afifi, Turner, Taillieu, LeBouthillier, et al., 2018; Carleton et al., 2022; Ricciardelli, McKendy et al., 2022). Though not statistically tested for differences, we note the proportions of CWs in the current sample who reported past-year and lifetime suicidal ideation (9.1%, 29.2%), planning (4.1%, 14.7%), or attempts (0.8%, 7.2%) were greater than the general population proportions for past-year and lifetime prevalence proportions for suicidal ideation (3.6%, 13.3%), planning (1.3%, 4.6%) and attempts (0.6%, 3.5%; Sareen et al., 2016; Statistics Canada, 2017). The current proportions were slightly lower than previous research wherein data from federal, provincial, and territorial CWs were analysed in aggregate for past-year and lifetime suicidal ideation (11.0%, 35.2%), planning (4.8%, 20.1%), or attempts (0.4%, 8.1%; Carleton, Afifi, Turner, Taillieu, LeBouthillier, et al., 2018), but comparable to previous estimates using data from a single province for past-year and lifetime suicidal ideation (7.0%, 26.6%), planning (2.6%, 11.9%), or attempts (0%, 5.2%; Carleton et al., 2022). The relative results suggest there may be important differences between federal and provincial or territorial CW experiences, but broadly support the elevated proportions of suicidal

TABLE 2 Canadian provinces/territories and suicidal behaviours (unadjusted models).

	Lifetime suicidal behaviours					
	Ideation		Plan		Attempt	
Province/Territory	% (*n*)	OR (95% CI)	% (*n*)	OR (95% CI)	% (*n*)	OR (95% CI)
Data collected before COVID-19 onset (*n* = 2410)	29.8 (717)		14.7 (354)		7.2 (174)	
ON (*n* = 1021)	26.1 (**266**)	1.00	11.5 (**117**)	1.00	5.1 (**52**)	1.00
MB (*n* = 552)	35.1 (**194**)	1.54 (1.23, 1.92)***	20.9 (**115**)	2.04 (1.54, 2.70)***	10.0 (**55**)	2.08 (1.40, 3.08)***
NB (*n* = 25)	48.0 (**12**)	2.62 (1.18, 5.81)*	36.0 (**9**)	4.34 (1.88, 10.05)***	—	1.69 (0.39, 7.40)
NL (*n* = 62)	24.2 (**15**)	0.91 (0.50, 1.65)	12.9 (**8**)	1.14 (0.53, 2.46)	—	0.95 (0.29, 3.12)
NS (*n* = 142)	28.2 (**40**)	1.11 (0.75, 1.65)	11.3 (**16**)	0.99 (0.57, 1.72)	3.5 (**5**)	0.69 (0.27, 1.75)
SK (*n* = 564)	31.0 (**175**)	1.28 (1.02, 1.60)*	14.6 (**82**)	1.32 (0.97, 1.79)	9.4 (**53**)	1.94 (1.31, 2.89)***
YK (*n* = 44)	34.1 (**15**)	1.47 (0.78, 2.78)	15.9 (**7**)	1.46 (0.64, 3.35)	—	1.86 (0.64, 5.41)
Data collected after COVID-19 onset (*n* = 1033)	27.8 (287)		14.5 (150)		7.1 (73)	
AB (*n* = 361)	33.0 (**119**)	1.40 (1.08, 1.81)*	20.8 (**75**)	2.02 (1.47, 2.78)***	8.3 (**30**)	1.69 (1.06, 2.69)*
BC (*n* = 374)	25.1 (**94**)	0.95 (0.73, 1.25)	10.2 (**38**)	0.87 (0.59, 1.29)	6.7 (**25**)	1.34 (0.82, 2.18)
NT (*n* = 14)	42.9 (**6**)	2.13 (0.73, 6.19)	—	2.11 (0.58, 7.66)	—	5.08 (1.38, 18.77)*
NV (*n* = 10)	—	1.22 (0.31, 4.74)	—	0.86 (0.11, 6.83)	—	2.07 (0.26, 16.65)
PEI (*n* = 57)	26.3 (**15**)	1.01 (0.55, 1.86)	14.0 (**8**)	1.26 (0.58, 2.73)	—	1.41 (0.49, 4.04)
QC (*n* = 217)	23.0 (**50**)	0.85 (0.60, 1.20)	11.5 (**25**)	1.01 (0.64, 1.59)	4.6 (**10**)	0.90 (0.45, 1.80)
Differences between provinces[a]		MB > on, BC, QC		MB > BC, QC, SK, NS, ON		MB > QC, NS, ON
		NB > BC, QC, on, NL		NB > BC, QC, PEI, SK, NS, on, NL		SK > QC, NS, ON
		SK > QC, ON		SK > BC		AB > ON
		AB > BC, QC, ON		AB > BC, QC, SK, NS, ON		NT > BC, QC, NS, ON

Note: To protect respondent confidentiality, we are not reporting the number or percentage of respondents where the cell count size is less than five respondents. Dashes (—) indicate cells where this minimum criterion was not met (i.e., less than 5 respondents in the cell).

Abbreviations: AB, Alberta; BC, British Columbia; CI, confidence interval; MB, Manitoba; NB, New Brunswick; NL, Newfoundland and Labrador; NS, Nova Scotia; NT, Northwest; NU, Nunavut; ON, Ontario; OR, odds ratio; PEI, Prince Edward Island; QC, Quebec; SK, Saskatchewan; YK, Yukon.

[a]Differences across the provinces and territories were tested by changing the reference categories in logistic regression models (at least $p < .05$). Bold type indicates the province with significantly larger odds.

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

behaviours as robust estimates. Future research is warranted into why, which is likely informed by the stresses of remand, trial, and sentencing, the more challenging conditions of confinement, more precarious employment (e.g., the use of casual employees), and so on. We also recommend a direct comparison of prevalence of suicide behaviours between federal and provincial/territorial CWs at the same point in time to determine if they support or fail to support the impact of differences.

There was a trend for midwestern provinces (i.e., AB, SK, MB) to evidence higher proportions of lifetime suicidal behaviours than pacific (i.e., BC) and eastern provinces (i.e., ON, QC). The territories (i.e., NT, NV, YK) also appeared to evidence higher proportions of suicidal behaviours, but the differences were not statistically significant. There were also other possibly important differences that were less consistent, such as provinces (e.g., NB) evidencing higher proportions of lifetime suicidal ideation and planning but not higher attempts, or territories (e.g. NT) evidencing higher proportions of suicide attempts, but not ideation or planning. The intermittent patterns may reflect differences in sample sizes, available treatment and mental health resources, workplace cultures, lived experiences and exposures, or other influences, all of which would require additional research to confirm. In the interim, organisational leaders may benefit from knowing there may be important geographic systemic differences associated with suicidal behaviours among provincial and territorial CWs. To understand geographical differences, we suggest future analyses include suicide prevalence in the general population as CWs are not immune to the context in which they live. Detailed analyses that reveal the impact of the job beyond that of geography or how these factors interact are also warranted.

There were too few CW participants in the current sample who self-reported past-year suicidal planning or attempts to assess stratified by sociodemographic groups; however, the numbers were large enough for such assessments with past-year suicidal ideation and with lifetime suicidal ideation, planning, and attempts. Contrasting our hypothesis, there were no statistically significant differences in the proportions of past-year suicidal ideation across different occupational categories. Also contrasting our hypothesis, there were no consistent statistically significant differences in the proportions of lifetime suicidal behaviours across different occupational categories (i.e., there was no evidence that one or more specific occupational groups was at a significantly elevated risk across all lifetime suicide behaviour outcomes). COs appeared more likely to self-report lifetime suicidal ideation than Community Management/Administrative personnel, but less likely than Youth CWs. COs also appeared more likely to self-report suicidal planning than Community Operational personnel, but less likely than Institutional Operational personnel. Consistent with our hypotheses, women respondents were more likely to report a lifetime suicide attempt ($p < 0.001$), but contrasting our hypotheses, the only other sex differences were that women respondents appeared less likely to report past-year suicidal ideation. The inconsistent differences suggest idiosyncratic experiences may have broader influence than occupational groupings and sex, and further support the need for individualised mental health supports throughout PSP careers. Given the inconsistency with prior findings (i.e., gender differences), more research is warranted to explore why, particularly given findings are replicated with a consistent pattern, which requires explanation to further inform intervention and prevention strategies.

Several other sociodemographic characteristic results were consistent with previous research results (Carleton, Afifi, Turner, Taillieu, LeBouthillier, et al., 2018; Carleton et al., 2022). Respondents who were single appeared more likely to report past-year suicidal ideation than those who were married, remarried, or in a common-law relationship. Separated, divorced, or widowed respondents were more likely to report past-year suicidal ideation or lifetime suicidal behaviours than respondents who were married, remarried, or in a common-law relationship. Extant evidence supports the protective benefits that being in a partnered relationship can provide for mental health and suicidal behaviours (Ide et al., 2010; Kposowa, 2000); accordingly, consistent with recommendations (Vig et al., 2020), supporting the partners and families of CWs may help mitigate mental health risks alongside encouraging all CWs to foster social support networks (Kaur et al., 2023). Given the uniqueness of the CW role in Canada, which is laced with confidentiality requirements, the role of colleagues as potential supports as well as professionals and loved ones requires additional study.

Respondents with 4–9 years, or 10–15 years, of service were more likely to report past-year suicidal ideation or lifetime suicidal behaviours than respondents with less than 4 years of service. The pattern was consistent with some (Carleton et al., 2022) but not all (Carleton et al., 2018) suicide research with CWs, and suggests that for provincial and territorial CWs, increased service involves cumulative impacts from diverse, repeated, and protracted stressors (Ricciardelli, McKendy, et al., 2022, Ricciardelli, Czarnuch, et al., 2020), which can compromise mental health and increased risk for negative outcomes, including suicidal behaviours. Respondents with more than $80,000 in total household income were statistically significantly ($p < 0.05$) less likely to report past-year suicidal ideation or lifetime suicidal behaviours than respondents with less than $80,000 in total household income, which is a new finding. The additional household resources may help mitigate mental disorders (Sareen et al., 2016) and suicidal behaviours (Naher et al., 2020) directly (e.g., being able to pay for mental health treatments) and indirectly (e.g., supporting partnered relationships by reducing overall relationship strains), though additional research would be needed to help understand the interactions and inform most effective intervention options.

Contrasting our hypothesis, findings indicate there were no differences between provinces and territories where data collection occurred before versus during the COVID-19 pandemic with respect to prevalence proportions of suicidal ideation, planning, or attempts. However, there is no reason to expect that CWs were not impacted by pandemic-related stressors (García-Vivar et al., 2023; Heber et al., 2020; Lake et al., 2022), so understanding the absent differences becomes a matter of speculation. Possibly, the successful efforts to decarcerate during the pandemic may have positively impacted the staffing crisis in correctional services, thus reducing organisational stress and positively supporting CW wellness (i.e., they had proper support to do their job with the reduction in prisoners during COVID-19). Having a full complement of staff may have reduced the impacts of the pandemic on CW wellness. The incremental impact of the pandemic-related stressors on suicidal behaviours may even take time to become evident for CWs. Also, several changes to CW work environments in response to COVID-19 might have more than mitigated the pandemic-related stressors; for example, remote work opportunities, changes to administrative tasks, and substantial decarceration efforts (i.e., the release of select prisoners back into the community prior to the end of their sentence) may have ceased, which suggests additional research is required. In addition, there may be a relative ceiling effect among CWs for suicidal behaviours. In any case, additional research would be needed to understand the complex interactions between COVID-19 and CW suicidal behaviours. Overall, our results can fill important gaps in prevalence estimates for, and correlates of, suicidal behaviours among diverse CWs, facilitating tailored efforts by clinicians, service providers, and organisational leaders to support proactive interventions and treatments, and provide opportunities for future research.

4.1 | Limitations

The current study has several limitations that can help inform further directions for future research. First, given the self-selected sample and methods of recruitment (e.g., both government and union listservs were often used), we cannot determine the response rate and sampling frame. A similar survey using randomised sampling may help resolve this limitation in future work. Second, the large variance in absolute and relative proportions of participants across provinces and territories may have obfuscated important differences and limits generalisability. Future researchers should work to acquire larger and more representative samples. Third, self-reported responses collected online, many of which were incomplete due to participants electing not to answer all questions (i.e., not all participants responded to items assessing suicide) may be less robust than data gathered from clinical interviews. Future researchers should consider using abridged surveys and clinical interviews. Fourth, self-reported estimates of suicidal behaviours necessarily exclude persons who have died by suicide, which potentiates systemic under-reporting of the actual prevalence proportions. Multi-modal assessments using data from organisational sources (e.g., human resource records) may provide future researchers with more comprehensive prevalence estimates. Fifth, participants may under-report suicidal behaviours, even when anonymous (Berger et al., 2012; Hunt et al., 2003), as function of stigma or fears about interference (Halpern et al., 2009; Henderson et al., 2016; Johnston & Ricciardelli, 2023; Karaffa & Koch, 2016); however, there is also evidence that anonymity may improve accurateness (Ashbaugh et al., 2010). Sixth, we modelled the survey on questions derived from the Statistics Canada, 2013 Canadian Community Health Survey (Statistics Canada, 2016) and previous PSP research (Carleton, Afifi, Turner, Taillieu, LeBouthillier, et al., 2018), but direct comparisons may not generalize due to data collection method variance. In any case, the current sample appears to be the largest national sample of provincial and territorial CWs with results that underscore overall conclusions regarding increased risks for suicidal behaviours. Seventh, we did not access lifetime prevalence of suicidal behaviours controlling for age of onset, which means some reported behaviours may have preceded CW service. Future research should nuance age of onset with respect to lifetime suicidal behaviours. Eighth, we were unable to examine differences among those who did not identify as male or female (e.g., transgender) given the small number of respondents reporting a different sexual identity (i.e., $n = 36$ in the entire sample). Future research examining the experiences of sexual and gender minority CWs is clearly warranted. Ninth, the interactive effects of mental health, PPTE, and occupational (i.e., organisational and operational) stressors as correlated to suicidal behaviours among PSP require direct, focused, longitudinal research (Carleton, Afifi, et al., 2020; Houdmont, 2017), all of which may help inform proactive workplace efforts with respect to suicidal behaviours (Milner et al., 2015). Further, future research in the areas of occupational stresses as well as the impact of perceived social support is warranted.

5 | CONCLUSIONS

Aligned with our hypotheses, we found evidence that provincial and territorial CWs self-reported suicidal behaviours—ideation, planning, and attempts—much more frequently than would be expected from the general population and somewhat consistently across the sample. There was evidence of differences based on geographic location, marital status, and years of service. The current results may inform opportunities that might reduce suicidal behaviours and deaths by suicide. Garnering a better understanding of the mechanisms driving differences in the prevalence of suicidal behaviours across provinces and territories may provide important insights for prevention and intervention. In the interim, the results suggest mental health resources should be available throughout CW careers. There may also be opportunities to support CW mental health by providing supports to their spouses and their families. Supporting CW mental health is inherently valuable, and can foster a healthier, more sustainable correctional labour force, and by extension healthier prisoner/probationer populations.

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CONFLICT OF INTEREST STATEMENT

The author(s) declare(s) that they have no competing interests.

DATA AVAILABILITY STATEMENT

The datasets generated and/or analysed during the current study are not publicly available due to guarantees made in the data collection consent form regarding protections to ensure participant confidentiality.

ETHICS STATEMENT

Research ethics boards at University of Regina (REB #2017-098) and Memorial University of Newfoundland (ICEHR #20201330-EX) approved the data collection for the current study. We complied with Canadian Psychological Association ethical standards in the treatment of our sample. The survey was available for voluntary participation from December 2017 to June 2023. We directed all interested persons to a website with study details and participants were required to explicitly indicate consent before proceeding.

CONSENT TO PUBLISH

There are no details, images, or videos relating to an individual person presented in the current manuscript.

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