



A pilot study on the efficacy of an online mindfulness intervention for Canadian police officers

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ABSTRACT

Police officers experience higher levels of mental illness compared to the general population. These traumas are known as operational stress injuries and are the result of operational and organizational stressors. These stressors often result in elevated levels of stress, anxiety, and depression. Mindfulness is widely becoming a mainstream method to help individuals cope with these disorders; however, while rapidly growing, the literature on the efficacy of mindfulness programs for police officers is in its infancy. Given the atypical work schedules officers keep, and the COVID-driven demand for remote service delivery, this pilot study examined the efficacy of a modified version of the online mindfulness program called MindFit Cop. Officers in our study completed a series of surveys before and after the 9-week intervention. We found significant results across timepoints for total mindfulness and self-compassion scores, and a significant interaction for time × group for non-reactivity. No significant results were found for group. This pilot study lends further support for the benefits of mindfulness for police officers in improving overall mindfulness and self-compassion.

Key Words Police; mental health; mindfulness; self-compassion.

INTRODUCTION

Police officers experience mental illness at higher rates compared to the general public (Carleton et al., 2018, 2020). Carleton and colleagues (2018) found that 19.6% of municipal/provincial police and 31.7% of Royal Canadian Mounted Police (RCMP) officers screened positive for major depressive disorder; 21.3% of municipal/provincial police and 34.7% of RCMP screened positive for any mood disorder; 14.6% of municipal/provincial police and 23.3% of RCMP screened positive for generalized anxiety disorder; 10.0% of municipal/provincial police and 18.7% of RCMP screened positive for social anxiety disorder; and 23.7% of municipal/provincial police and 37.3% of RCMP screened positive for any anxiety disorder. Elevated rates were also found in a recent systematic

review and meta-analysis of 272,463 officers internationally (Syed et al., 2020).

Officers are exposed to a plethora of dangers (i.e., shootings) and experience immense bureaucratic stressors (i.e., paperwork), referred to as operational and organizational stressors, respectively (McCreary & Thompson, 2006; McCreary et al., 2017). In a recent systematic review, Purba and Demou (2019) found strong evidence for the association of organizational stressors and occupational stress with psychological distress, psychiatric symptoms, emotional exhaustion, and feelings of personal accomplishment. Acquadro Maran and colleagues (2022) found similar themes in their thematic review, while also noting that these outcomes could impact mental health outcomes (i.e., anxiety and depression). Mindfulness and self-compassion

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training are widely gaining traction as a viable option for officers and other first responders to address their mental health needs.

Mindfulness

In the West, mindfulness is commonly defined as the practice of paying attention to one's experience in the present moment and orienting oneself toward those experiences with an attitude of curiosity, openness, and acceptance (Kabat-Zinn, 1994). Trait mindfulness is most commonly measured using the Five Facet Mindfulness Questionnaire (FFMQ; Baer et al., 2006), which divides dispositional mindfulness into the following five facets: observing (noticing internal and external sensations, thoughts, and feelings); describing (labelling thoughts, feelings, and emotions); acting with awareness (engaging in the present moment with undivided attention); non-judging (accepting the present moment with a non-evaluative stance); and non-reactivity (not reacting impulsively to one's experience). Meta-analyses (i.e., Carpenter et al., 2019; Goldberg et al., 2018) and systematic reviews (i.e., Tomlinson et al., 2018) suggest that certain facets of mindfulness are associated with lower levels of stress, anxiety, and depression in the general population. The benefits of mindfulness for police officers can be relied upon from studies examining the same construct in military veterans, given their similar occupation and structure (i.e., Colgan et al., 2019; Serpa et al., 2021; Stephenson et al., 2017).

Self-Compassion

Self-compassion is defined as one's ability to be open to one's suffering and reducing it via acts of kindness toward oneself (Neff, 2003b). Self-compassion disposition is often measured using the Self-Compassion Questionnaire (Neff, 2003a) or its short form (Raes et al., 2011). In a recent scoping review of self-compassion and veteran's health, Steen and colleagues (2021) found benefits for those suffering from symptoms of post-traumatic stress disorder (PTSD), trauma-related guilt, and depression.

Mindfulness and Self-Compassion in Police Officer Samples

Based off the mindfulness-based stress reduction (MBSR) program (Kabat-Zinn, 1990), Christopher and colleagues (2016) found significant improvement in mindfulness, occupational stress, and perceived stress in a pilot study of mindfulness-based resilience training; however, Christopher et al. (2018) highlighted the need for booster sessions to maintain gains long-term. Navarrete et al. (2022) found significant pre-post differences for mindfulness, self-compassion, depression, anxiety, and stress symptoms. In a recent meta-analysis of mindfulness-based interventions (MBIs) for police officers, Vadvilavičius and colleagues (2023) found that these programs were efficacious in reducing operational and organizational stress and levels of perceived stress, while also increasing disposition to self-compassion, facets of mindfulness, and mindfulness processes amongst others. In another meta-analysis, Lu and Petersen (2023) examined the efficacy of psychological skills training for police officers, of which mindfulness training was included; they came to the same conclusions as Vadvilavičius and colleagues (2023).

Systematic reviews and meta-analyses have shown promise in using online mindfulness interventions for treating stress, anxiety, and depression (Sommers-Spijkerman et al., 2021; Spijkerman et al., 2016; Zhang et al., 2020). Small increases in overall mindfulness disposition have also been found in non-police samples (Sommers-Spijkerman et al., 2021). Similarly, studies for delivering self-compassion online have demonstrated positive results (Finlay-Jones et al., 2017). This is promising, as online delivery appears to be the preferred method (Wahbeh et al., 2014). In Canada, most of the research has focused on internet-delivered cognitive behavioural therapy for public safety personnel, with promising results (i.e., Hadjistavropoulos et al., 2021; McCall et al., 2020); however, there is a significant lack of published data with Canadian public safety personnel and the use of MBIs (Stevenson, 2022). To date, we are aware of five papers from three authors that consider Canadian officers, none of which investigated the efficacy of an MBI (Fleischmann et al., 2021; Stevenson, 2018, 2022; Sylven, 2021, 2023). Efficacy studies for online MBIs in other populations such as firefighters (i.e., Joyce et al., 2018) and veterans (i.e., Reyes et al., 2020) have been conducted elsewhere, also with promising results. To our knowledge, there are only two studies that have evaluated the efficacy of an online MBI for police.

Fitzhugh and colleagues (2019) compared a bespoke online mindfulness program called MindFit Cop (MFC), developed in the United Kingdom, to the popular mindfulness app Headspace®, or a waitlist control. They found that Headspace® improved the primary outcomes of well-being, life satisfaction, resilience, and performance at 10 and 24 weeks. MFC improved well-being and life satisfaction at 10 weeks; however, all primary outcomes were improved at 24 weeks. They also found that Headspace®, but not MFC, improved mindfulness disposition scores at 10 weeks, and that Headspace® was more effective than MFC at 10 weeks. However, both were equally effective at 24 weeks with no added benefits seen from using MFC. Similar results were found in a randomized control trial conducted by Fitzhugh and colleagues (2023), in which they examined the benefits of mindfulness on employee well-being at individual and organizational outcomes in a sample of employees across five police forces.

Fitzhugh and colleagues' (2019) study, on which the present pilot study is based, has several limitations. These include a lack of real-time access to facilitators; no retreat (an essential aspect of the MBSR program); use of Headspace® as a comparison without controlling which modules the participants have access to; and lack of measurement of self-compassion, occupational stress, and perceived stress, anxiety, and depression. The current pilot study aimed to address these limitations by comparing a modified version of MFC to an active control group in a sample of Canadian officers. Based on previous research, we hypothesized the following: (1) participants in the MFC group will experience greater decreases in occupational stress and perceived stress, anxiety, and depression outcomes compared to those in the home practice group; and (2) participants in the MFC group will experience greater increases in self-reported mindfulness and self-compassion dispositions compared to those in the home practice group.

THE PRESENT STUDY

Method

Participants

A flow diagram detailing the number of participants and reasons for exclusion can be found in Figure 1. Skewness and kurtosis were calculated to confirm normality ($|Z| < 3.2$). Participant demographics can be found in Table I.

Procedure

Participants were recruited via social media (Twitter) and direct contact with various police agencies across Canada, with information distributed via an electronic flyer. Interested participants were encouraged to enrol in a 1-hour, no-commitment information session hosted via Zoom. Several dates and times were offered to accommodate different schedules and time zones. After the information session, those still interested contacted the team via e-mail to express their interest. Once the enrolment date closed, all participants were randomly assigned to either the MFC or home practice group using the RAND formula on Excel. Participants were informed of the random selection procedure during the information session. After being assigned, all participants were sent several surveys to complete online using LimeSurvey. At the conclusion of the study, and 3 months later, participants were asked to fill out the same measures again. A satisfaction survey was sent out at the 3-month follow-up. Of note, data from the follow-up are not reported given the small and unbalanced number of individuals who completed these measures ($n_{MFC} = 8$; $n_{HP} = 3$). In addition, while the authors attempted to run a second group, this was not possible due to COVID-related challenges.

Those in the MFC group were then instructed to follow the assigned outline, which directed participants through the program. The authors modified the curriculum slightly by requiring participants to attend weekly check-ins via Zoom, which lasted about 30 minutes. In these sessions, extra information based on the week's topic was provided by facilitators. Participants were also divided into breakout rooms to discuss their own experiences. Handouts were sent electronically at the end of each session with a brief summary, instructions for their daily practice, and relevant supplemental readings. We also added an extra week to accommodate a half-day virtual retreat, which occurred during week 5. Requests for program materials can be sent via e-mail to the first author.

Those in the home practice group were simply asked to follow a generic YouTube-guided meditation each day for 9 weeks. The video was 20 minutes in length, with no additional didactic component from the recording or the researchers.

All participants were asked to fill out daily practice logs. They were asked to record how many times each day they practised formally and informally, the average time spent practising, and any notes or observations. These were sent back to facilitators via e-mail on a weekly basis.

All participants were given the option of enrolling in a raffle to win one of six \$100 gift cards as compensation. This study received ethical approval from McGill University's Research Ethics Board-II (file # 20-11-060).

Measures

Alpha values can be found in Table II.

Police Stress Questionnaire: The Police Stress Questionnaire (PSQ; McCreary & Thompson, 2006) is a 40-item questionnaire composed of two 20-item subscales. These subscales

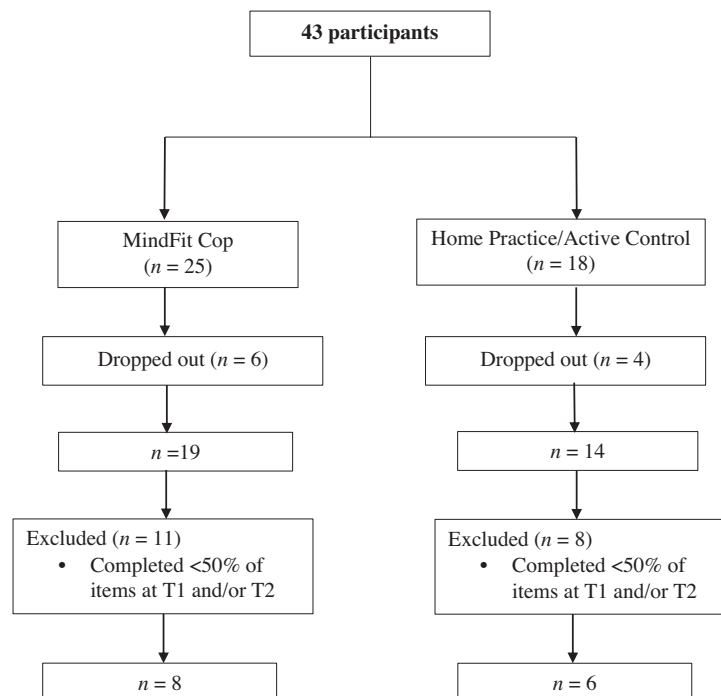


FIGURE 1 Participant flow diagram

TABLE I Sociodemographic characteristics of participants

Variable	n	%
Gender		
Male	8	29.6
Female	5	18.5
Non-binary	1	3.7
Age		
20–29	2	14.3
30–39	6	42.9
40–49	2	14.3
50+	3	21.4
Ethnicity		
White/Caucasian	12	44.4
Indigenous	1	3.7
Other	1	3.7
Rank		
Constable	7	25.9
Sergeant	3	11.1
Staff sergeant	1	3.7
Other	1	3.7
Province		
Ontario	9	33.3
Manitoba	2	7.4
Saskatchewan	1	3.7
Alberta	1	3.7
British Columbia	1	3.7

Note. Not all participants provided information for all demographics.

assess perceived operational stress (PSQ-Op) and organizational stress (PSQ-Org). Each item is ranked on a seven-point Likert scale from *no stress at all* to *a lot of stress*. The PSQ has demonstrated excellent reliability and validity (McCreary & Thompson, 2006). In the present study, both subscales demonstrated good to excellent internal consistency.

Five Facet Mindfulness Questionnaire: Trait mindfulness was measured using the 39-item FFMQ (Baer et al., 2006). This scale assesses the five facets (i.e., observing, describing, acting with awareness, non-judging, and non-reactivity) as it is presently conceptualized. Each item is rated on a five-point Likert scale from *never or very rarely true* to *very often or always true*. The FFMQ has demonstrated good reliability and validity (Baer et al., 2008) and has been used in previous studies of mindfulness and policing (i.e., Christopher et al., 2016; Fleischmann et al., 2021). In the present study, the facets showed good to excellent internal consistency.

Self-Compassion Scale: The Self-Compassion Scale (SCS; Neff, 2003a) is a 26-item measure that measures trait self-

TABLE II Reliability calculations

Measure	Home Practice Pre-Test (n = 6)	Home Practice Post-Test (n = 5)	MindFit Cop Pre-Test (n = 8)	MindFit Cop Post-Test (n = 8)
FFMQ total	0.92	0.86	0.79	0.92
SCS total	0.96	0.90	— ^a	0.97
PSQ-Op	0.51	0.91	0.75	0.75
PSQ-Org	— ^c	0.84	0.92	0.96
DASS-21				
Depression	0.35 ^b	0.71 ^b	.86	0.84
Anxiety	0.28 ^b	0.47 ^b	0.92	0.73
Stress	0.76	0.49 ^b	0.86	0.74

^aCalculations were not possible due to participants in this group not completing item 1 of the SCS. When SCS item 1 was not included, the alphas were 0.97 for total and 0.85 for self-judgment.

^bThere is a warning that these measures have zero variance items.

^cReliability calculations were not possible due to the small sample size.

Note. DASS-21 = Depression Anxiety Stress Scale-21; FFMQ = Five Facet Mindfulness Questionnaire; PSQ-Op = Police Stress Questionnaire – Operational; PSQ-Org = Police Stress Questionnaire – Organizational; SCS = Self-Compassion Scale.

compassion. The SCS is rated on a five-point Likert scale from *almost never* to *almost always*. Total SCS scores have been found to have good internal reliability, as did the six subscales on development and validity sample of undergraduate students (Neff, 2003a). The SCS has been used in previous policing research (i.e., Márquez et al., 2021). In the present study, total scores demonstrated poor to excellent internal consistency, likely due to the small sample size.

Depression Anxiety Stress Scale-21: The Depression Anxiety Stress Scale-21 (DASS-21; Lovibond & Lovibond, 1995) is a 21-item scale that measures stress, anxiety, and depression symptoms. Items are answered on a four-point Likert scale from *did not apply to me at all* to *applied to me very much or most of the time*. The DASS-21 has demonstrated excellent reliability and validity (Dreyer et al., 2019) and has been used in previous samples of police officers (i.e., McDonald et al., 2020). In the present study, the subscales demonstrated poor to excellent internal consistency, likely due to the small sample size.

Data Analysis

Data analysis was conducted using IBM SPSS (Version 29). Participants had to complete at least 80% of the items within each variable to be included. List-wise deletion was used to omit missing data, and univariate outliers were removed (± 3.5 standard deviation (SD)). Multiple repeated-measures analyses of variance (ANOVAs) were conducted to assess whether there was a difference between and within pre- and post-test data for both the MFC and home practice group. The data were analyzed for any deviations in normality using Shapiro–Wilk’s test. Results indicated that not all variables conformed to normality; however, as ANOVAs are relatively robust to deviations in normality, and because this is a pilot study, we elected to proceed. Homogeneity of variance was

TABLE III Descriptive statistics of repeated-measures ANOVAs

Measure	Condition	Baseline M (SD)	Post-Intervention M (SD)
FFMQ total score	MFC	3.30 (0.35)	3.57 (0.53)
	HP	3.08 (0.55)	3.51 (0.37)
SCS total score	MFC	2.88 (0.76)	3.26 (0.77)
	HP	3.08 (0.82)	3.44 (0.43)
PSQ-Op	MFC	3.68 (0.58)	3.68 (0.62)
	HP	3.40 (.81)	3.33 (0.93)
PSQ-Org	MFC	3.81 (0.92)	3.61 (1.23)
	HP	3.12 (0.37)	3.06 (0.84)
DASS-21 (stress)	MFC	1.09 (0.59)	0.97 (0.42)
	HP	1.08 (0.67)	0.92 (0.36)
DASS-21 (anxiety)	MFC	0.71 (0.75)	0.62 (0.47)
	HP	0.33 (0.26)	0.16 (0.21)
DASS-21 (depression)	MFC	0.77 (0.66)	0.66 (0.49)
	HP	0.37 (0.20)	0.43 (0.25)

Note. ANOVA = Analysis of variance; DASS-21 = Depression Anxiety Stress Scale-21; FFMQ = Five Facet Mindfulness Questionnaire; HP = home practice; MFC = MindFit Cop; PSQ-Op = Police Stress Questionnaire – Operational; PSQ-Org = Police Stress Questionnaire – Organizational; SCS = Self-Compassion Scale; SD = standard deviation.

tested using Levine's test. Deviations were found for time 1 depression scores. Although this is a limitation, ANOVAs are generally robust to heterogeneity when group sizes are similar (largest/smallest is <1.5; Stevens, 2002). Means and SDs can be found in Table III.

RESULTS

Mindfulness

We found significant results across timepoints for total FFMQ scores, $F(1, 12) = 14.56, p = 0.002$, partial $\eta^2 = 0.55$. We only found a significant result for time \times group for non-reactivity, $F(1, 12) = 5.89, p < 0.05$, partial $\eta^2 = 0.33$. No significant results were found for group (i.e., MFC vs. home practice; all $p > 0.05$).

Self-Compassion

We found significant results across timepoints for total SCS scores, $F(1, 11) = 5.72, p < 0.05$, partial $\eta^2 = 0.34$. No significant results were found for group (i.e., MFC vs. home practice; all $p > 0.05$).

Operational and Organizational Stress

No significant results for time, group, or time \times group was found (all $p > 0.05$).

Perceived Stress, Anxiety, and Depression

No significant results for time, group, or time \times group was found for measures of perceived stress, anxiety, or depression (all $p > 0.05$).

DISCUSSION

To our knowledge, this is the first study to empirically evaluate the efficacy of a bespoke online MBI for police officers in Canada. We did not find support for hypothesis 1; that is, there was no difference in occupational stress, perceived stress, anxiety, and depression outcomes based on group. We also did not find support for hypothesis 2 in that participants in the intervention group did not exhibit higher levels of mindfulness and self-compassion across timepoints compared to those in the active control group. However, overall levels of mindfulness and self-compassion increased independent of group, consistent with Visted and colleagues (2015) who found improvements in mindfulness scores in an active control group in a non-police sample. This is not surprising, as one could reasonably expect changes over 9 weeks of daily dedicated practice.

Lack of support for hypothesis 1 is somewhat surprising, as previous intervention research found positive changes on mental health and self-reported mindfulness and self-compassion outcomes (i.e., Christopher et al., 2016, 2018; Eddy et al., 2021; Grupe et al., 2021; Hovee et al., 2021; Kaplan et al., 2017, 2020; Krick & Felfe, 2020; Navarrete et al., 2022; Trombka et al., 2018, 2021). Aside from mindfulness, we were unable to compare our findings to those of Fitzhugh and colleagues (2019) as they had different outcome variables. Our results, in tandem with those of Fitzhugh and colleagues (2019, 2023), suggest that using a bespoke online mindfulness program for police officers may not be necessary to reap the benefits of mindfulness in terms of structure. However, police culture needs to be considered when designing the content; recognizing certain aspects such as oversharing is highly stigmatized and may serve to isolate participants (Christopher et al., 2016). Given the vast number of resources needed to develop a mindfulness intervention, these findings may assist senior police leadership to allocate funds more efficiently if they are interested in introducing mindfulness to their employees.

We only found a significant result for time \times group for non-reactivity. These findings are somewhat consistent with those of Christopher and colleagues (2016) who found improvements in overall mindfulness and in non-judging and non-reactivity scores; Christopher and colleagues (2018) who found changes in non-reactivity; and Márquez and colleagues (2021) who found changes in mindfulness, observing, and non-reactivity (although Márquez and colleagues noted that not all trends reached significance). Similarly, we found that overall self-compassion scores increased independent of group.

The most likely reasons for the large discrepancy with previous research are small sample size and lack of multiple cohorts. It is also possible that the method of delivery impacted results. While the MFC group was closely monitored due to the weekly check-ins, the home practice group was left to complete the study relatively unsupervised. Finally, aside from the check-ins, the programs were self-facilitated. Typically, mindfulness programs are delivered in real time. Future researchers may want to consider evaluating asynchronous versus synchronous delivery of the same intervention to ascertain if there is a noticeable difference. This is especially important given the inconsistent work schedules that police officers adhere to.

LIMITATIONS AND FUTURE DIRECTIONS

The most evident limitations of our pilot study are sample size, lack of multiple cohorts, and lack of follow-up data. Moreover, review of participation logs suggests that not all participants were able to engage in a daily practice, something that is necessary to get the full benefits of mindfulness. At present, we do not see any way to circumvent this, especially with individuals on shift work and changing schedules. However, the first two limitations are easier to address, and we encourage other researchers to do so. Based on participant feedback, we also encourage researchers to prolong the amount of time spent in the breakout rooms. We intentionally kept this time short to avoid prolonging the overall duration of the check-in sessions; however, participants reported a desire for more time to discuss their experiences with their colleagues.

To our knowledge, this is the first study to empirically evaluate the efficacy of a bespoke online MBI for police officers in Canada. Similar to the findings of Fitzhugh and colleagues, our results, while limited, suggest that police officers may benefit from a generalized mindfulness practice via an app (i.e., Headspace®) or online videos, and thus, may not necessarily require a specialized program. However, more rigorous research is needed before conclusive findings can be derived for this unique population.

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CONFLICTS OF INTEREST DISCLOSURE

Advertising for this study was sent, but not limited to, the Barrie Police Service. Participation was voluntary and did not impact employment, standing, or promotion.

AUTHOR NOTE

Authors AB, MC, EC, RJ, BK, & MV are listed in alphabetic order by last name. The order of authorship is not intended to convey degree of involvement in this study. The Haven is currently operating on the property of another organization.

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