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Exploration of Trauma-Oriented Retreats: Quantitative Changes in Mental Health Measures for Canadian Military Members, Veterans and Royal Canadian Mounted Police with Posttraumatic Stress Disorder and Moral Injury

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Abstract: Background: Military members, veterans, and public safety personnel have been noted to have a higher risk of exposure to potentially traumatic events and potentially morally injurious events resulting in operational stress injuries (OSI) such as posttraumatic stress disorder (PTSD) and moral injury (MI). Treatments that can quickly and effectively address these conditions are desperately needed. The purpose of this research was to identify the impact of participation in a non-evidence-based trauma-oriented retreat for the above populations experiencing PTSD and MI. Methods: This study was an embedded mixed-methods longitudinal study with parallel repeated quantitative measures designed to evaluate outcomes at 1, 3, 6, and 12 months after completion of the retreat. Results: Analysis showed a statistically significant reduction in self-reported symptoms of PTSD, anxiety, stress, depression, MI, anger, and emotional dysregulation pre/post-retreat, and an increase in resilience. Self-reported longitudinal results did not see a change in symptom scores, with participants continuing to maintain their clinical diagnoses post-retreat. Conclusions: The results from this study illustrate that trauma-oriented retreats may be a complementary treatment modality for OSI-related conditions but should not be seen as a first-line treatment option. Program evaluation, determination of the evidence-based nature of retreats, and standardization are yet needed.

Keywords: military; veteran; royal Canadian mounted police; posttraumatic stress disorder; moral injury; trauma-oriented retreat

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1. Introduction

Posttraumatic stress disorder (PTSD) is one of the most common mental health conditions experienced by military members and veterans, and thus is a primary topic of military and veteran health research and care [1]. PTSD is characterized by symptoms related to negative cognitive intrusions, avoidance, hypervigilance, and alterations in mood, arousal, and reactivity [2]. It tends to be difficult to treat and, in the absence of treatment, symptoms may increase over time [3]. There is wide variance in the rate of PTSD among international military and veteran populations. For example, in U.S. military members deployed during the War on Terror, PTSD prevalence estimates reached 19% [4]. A recent meta-analysis reported that overall PTSD rates remained high (at approximately 23%) for U.S. veterans following 9/11 [5] and the incidence of PTSD increased to 24% for Canadian veterans [6]. In addition to PTSD, military members and veterans are also at increased risk for other mental illnesses associated with Operational Stress Injuries (OSIs) such as

major depressive disorder (MDD), generalized anxiety disorder (GAD), and substance use disorder (SUD) [7].

Mental health challenges faced by paramilitary groups, namely public safety personnel (PSP), have also been explored concurrently to military and veteran health. PSP is a broad term used to encompass personnel who ensure the safety and security of Canadians, including border services officers, public safety communications officials, correctional workers, firefighters, Indigenous emergency managers, operational intelligence personnel, paramedics, police, and search and rescue [8]. Similar to military personnel and veterans, PSPs are at an elevated risk of mental illness due to exposure to traumatic events and the high-risk and unpredictable nature of their work [9,10]. A 2018 Canadian study found that across all PSP groups, 44% screened positive for at least one mental health disorder [10]. One such group of PSP are the Royal Canadian Mounted Police (RCMP), the national police force in Canada [11]. A recent study found that RCMP participants screened positive for PTSD, MDD, GAD, social anxiety disorder, and panic disorder at higher rates than other police (i.e., provincial and municipal) [12]. RCMP participants also reported significantly higher rates of suicidal ideation than other police members, and participants who screened positive for MDD, PTSD, or panic disorder were more likely to have developed a suicide plan [12]. RCMP members have also been noted to have fewer protective factors from PTSD, such as hope, optimism, social support, and work engagement, compared to other police members [13].

In addition to a focus on PTSD in military and PSP research, a growing body of literature is exploring a construct referred to as moral injury (MI). Resulting from a transgression of deeply held morals and beliefs of right and wrong, MI has been viewed as a separate but often comorbid trauma syndrome [14]. While a universal operationalized definition has not been established, preliminary research has shown that MI may lead to psychological, social, existential, and spiritual suffering and impairment [15]. Specific to OSI-related mental illness, a review of the literature suggests that MI is associated with more severe PTSD, depression, and anxiety [16], and can interfere with traditional PTSD treatment responses and lead to poorer outcomes [17]. MI has also been strongly associated with increasing the likelihood of suicidality in active duty military personnel, veterans, and PSP [18–21]. A possible underlying mechanism for why MI may be associated with suicidality is the potential role of guilt and shame in the perpetuation of both PTSD and MI pathologies [16]. Significant emotional dysregulation is common in MI, with individuals experiencing intense moral emotions such as guilt, shame, anger, contempt, disgust, horror, regret, bitterness, and hopelessness [22,23]. More broadly, MI appears to also impact the social [24,25] and spiritual domains [26] of a person's life. Despite the potential significance of MI in the treatment of PTSD and other OSI-related mental illness, treatment for MI is extremely limited and broadly experimental [27].

Psychotherapy is often utilized to address the aforementioned mental health and behavioral issues, with a focus on cognitive restructuring and reprocessing after traumatic events [28,29]. Standard psychotherapeutic intervention occurs with a trauma focus over multiple sessions to process the traumatic experience(s) using cognitive, behavioral, or emotional techniques [30]. International PTSD treatment guidelines consistently recommend trauma-focused cognitive behavioral therapies (CBT), Cognitive Processing Therapy (CPT), Prolonged Exposure (PE), and Eye-Movement Desensitization and Reprocessing (EMDR) to be the gold standard and first-line treatments for military-related PTSD [28,29,31]. While evidence from repeated meta-analyses demonstrate that the above PTSD treatments are effective, military and veteran populations have not had the same therapeutic results as their civilian counterparts [31]. Among military personnel and veterans, recovery or improvement rates for traditional evidence-based psychotherapies is estimated at 31%, with drop-out rates ranging from 25% to 48% [32–34]. Even in treatment responders, PTSD symptoms often persist at or above diagnostic thresholds for PTSD, with approximately 60% retaining the diagnosis [35,36]. As a result, military members and veterans have been noted to be at an increased risk of treatment-resistant PTSD [37,38].

Novel treatment modalities or multimodal treatment options that can effectively address PTSD and MI within these populations are being explored by researchers in response to the above reality. One such approach is trauma-oriented (or holistic) retreats. Trauma-oriented retreats are intense short programs usually lasting two to five days that allow people to focus on specific health challenges or improve their overall wellbeing [39]. The use of these modalities is becoming more frequent within military, veteran, and PSP populations because of the attractiveness of their potentially short and intensive nature, allowing for a supposed ability to improve symptoms in a short period of time. Monk et al. [40] found that trauma symptoms were significantly reduced for veterans, and their partners reported a decrease in distress after the retreat. Similarly, Cox et al. [41] found that the use of three weekend-long retreats with 56 veterans statistically significantly reduced PTSD and depression scores. Kamena and Galvez [42] found that for 122 emergency responders, arousal and reactivity, avoidance, intrusive symptoms, negative alterations in cognition and mood, depression, exhaustion, symptoms related to panic attacks, somatic symptoms, and suicidal thoughts were all significantly decreased post-retreat.

Trauma-oriented retreats also often have the benefit of stemming from religious traditions and having a spiritual focus [43]. Spirituality has also been noted to have a potential ameliorating effect for OSI-related mental illness [44]. For example, Thomas et al. [45] found that military veteran participants' spirituality was "affirmed, renewed, or raised as a result of attending the peer-led resilient leadership program" during a trauma-oriented retreat (p. 1175). The potential importance of spirituality as a factor of treatment may be even more important given that spiritual distress is a core component of MI [46,47], and that spiritual practices and disciplines (i.e., prayer, meditation, nature, connection, purpose, meaning, hope, compassion and forgiveness, ceremony and ritual) may be effective for treatment [48,49]. Many of these spiritual practices and disciplines have also been noted to foster posttraumatic growth [50] and resilience [51–53].

Resilience—an ability to successfully adapt and recover from adversity [54]—has been suggested to be a key component of preventing OSIs, particularly PTSD. A study of trait resilience (i.e., behaviors, ways of thinking, and emotional reactions that support positive adaptations to challenging and stressful situations [55]) found it was associated with lower PTSD severity among soldiers returning from Afghanistan and Iraq [56,57]. Green et al. [58] further found that higher levels of resilience were particularly protective among individuals with high combat exposure and that resilience was uniquely associated with decreased suicidality, reduced alcohol problems, lower depressive symptom severity, and fewer health complaints. The bidirectionality of resilience was noted by Vyas et al. [59], who found that military members with low resilience were significantly more likely to develop physical, behavioral, and mental health conditions, while persons with high resilience had significantly reduced odds of developing PTSD, depression, and comorbid PTSD and depression. Resilience has also been noted to be a protective factor for soldiers leaving the military and transitioning to civilian life, as resilience seemed to mitigate against functional impairments [60]. The positive effects of resilience have also been noted to continue throughout a veteran's life, including in older age [61].

Treatment modalities which not only support the reduction in problematic mental illness symptoms but also seek to foster spirituality, posttraumatic growth, and resilience may be especially important for these populations. Despite the potential benefits of trauma-oriented retreats, however, limited research exists to determine their efficacy for military, veteran, and PSP populations.

Purpose: The purpose of this research was to identify the impact of participation in a non-evidence-based trauma-oriented retreat for military members, veterans, and RCMP experiencing OSIs. The longitudinal objectives of the research were threefold: (1) to determine the effect of the trauma-oriented retreat on the mental health symptoms of PTSD, depression, anxiety, MI, anger, and psychological distress; (2) to identify the impact of participation in the retreat on promoting resilience in military members, veterans, and RCMP; and (3) to conduct a gendered analysis to compare differences between male

and female participants. This study was about exploring the effect of the trauma-oriented retreat and should not be interpreted as a program evaluation nor a determination of the evidence-based nature of the retreat.

2. Materials and Methods

2.1. Study Design

This study was an embedded mixed-methods longitudinal study with follow-up time points at 1, 3, 6, and 12 months after completion of the trauma-oriented retreat. Follow-up time points entailed parallel repeated quantitative participant self-report measures designed to evaluate the effectiveness. This paper will focus on the quantitative components of the larger mixed-methods study, inclusive of pre/post-analysis of changes in symptoms of PTSD, depression, anxiety, and MI, which include levels of psychological distress, anger, and perceived resilience. The qualitative data will be published elsewhere.

2.2. Participants, Recruitment, and Informed Consent

The sample of this study consisted of 51 active duty military personnel, 97 military veterans, and 16 RCMP, for a total of 164 study participants. Eligibility criteria included an ability to understand and speak English; being a Canadian regular force military member, veteran, or RCMP member; having a diagnosis of PTSD and/or MI that has been determined by a registered medical professional; and having a stated desire and ability to participate in a trauma-oriented retreat. Suicidality was not a contraindication to participation in the trauma-oriented retreat, as suicidality frequently accompanies severe PTSD and MI. Exclusion criteria included active addiction to drugs and/or alcohol, psychosis, violent behavior or homicidal ideation, personality disorder (that precludes group psychotherapy), being legally mandated or directed by others to attend the program, or relative acute situational disturbance such as recent criminal charges or family disruption. Convenience sampling was utilized.

Screening and recruitment occurred as follows. Potential participants desiring to attend the program were screened by the program's medical team to determine eligibility and fit and were scheduled to attend a gender-specific cohort. Prior to the commencement of the program, potential participants engaged with the research team over a private videoconference and were invited to participate in the research study. Voluntary participation was explicitly discussed, and potential participants were informed that choosing not to participate in the research study would in no way impact the care provided by the program, nor would program staff know who had consented to study participation. Potential participants were instructed to take a hard copy of the consent form and questionnaires that, once completed, were sealed in envelopes. Potential participants who did not want to participate in the research were also instructed to put the blank consent forms and questionnaires into sealed envelopes to help maintain anonymity. The same process occurred during the offboarding process at the end of the intervention. Analysis was only completed on data from participants who consented to participation. This study received University Research Ethics Board (Pro00086960) and the CAF Surgeon General's Endorsement (E2019-02-250-003-0005).

2.3. Cohorts

Participants were assigned to a cohort that was composed of a mixture of active military personnel, veterans, and other first responders (including RCMP), for a total of 10–14 individuals in each group. All cohorts were gender-specific due to some of the participants' traumatic experiences and the vulnerable nature of program participants. Retreat staff were aware of this need, particularly for female or gender minority participants who had often experienced trauma involving sexual misconduct and required assurance of a safe and trusting environment given the residential nature. Peer supporters selected by the program's medical team, however, were of mixed genders on both cohorts. A total of

15 male and 12 female cohorts were run during the study time period (February 2019 to November 2020).

2.4. Data Collection

Quantitative data were collected using pen and paper (pre/post-intervention) and longitudinally (1, 3, 6, and 12 months post-intervention) via REDCap (Research Electronic Data Capture), a secure web-based application for building and managing online surveys and databases. Participants were asked to complete a demographics questionnaire at baseline and standardized self-report questionnaires at all six time points to assess for specific concerns.

2.5. Measures and Instruments

The Adverse Childhood Experience questionnaire (ACEs) [62] is a 10-item measure used to measure childhood trauma. The questionnaire assesses 10 types of childhood trauma measured in the ACE Study. Five are personal: physical abuse, verbal abuse, sexual abuse, physical neglect, and emotional neglect. Five are related to other family members: a parent who is an alcoholic, a mother who is a victim of domestic violence, a family member in jail, a family member diagnosed with a mental illness, and the disappearance of a parent through divorce, death, or abandonment. Scores above 4 correlate with worse mental and physical health outcomes as those who have experienced multiple ACEs reach adulthood [62].

The PTSD Checklist for DSM-5 (PCL-5) is commonly utilized to measure PTSD symptom severity by self-report [63]. The PCL-5 is a 20-item questionnaire about symptoms in relation to an identified "stressful experience". Each symptom can be rated on a 0–4 scale equaling from 0 to 80. This outcome measure is commonly utilized in research and clinical care to assess military members and veterans with PTSD and demonstrates strong reliability and validity. Evidence for the PCL for DSM-5 suggests 5 points as a minimum threshold for determining whether an individual has responded to treatment and 10 points as a minimum threshold for determining whether the improvement is clinically meaningful [64].

The Depression Anxiety and Stress Scale (DASS-21) is a 21-item set of three self-report scales designed to measure symptoms of depression, anxiety, and stress in both clinical and non-clinical adult samples [65]. Scores greater than 14 on the depression scale indicate extremely severe symptoms, while scores greater than 10 on anxiety and greater than 17 on stress indicate extremely severe symptoms.

The Military Injury Symptom Scale—Military Short Form (MISS-M-SF) [66] is a 10-item reliable and valid measure of MI symptoms that can be used to screen for MI and monitor response to treatment in veterans and active duty military with or without diagnosed PTSD [66]. The possible range of scores is from 10 to 100. The total score is an indication of functional impairment caused by MI.

The Dimensions of Anger Reactions (DAR-5) [67,68] is a 5-item self-report measure where respondents are asked how impacted they have been on a five-point Likert scale ranging from 0 to 5. Items are summed to provide a total severity score (range 5–25). Higher scores indicate worse symptomatology. A score equal to or greater than 12 indicates problems with anger [67].

The Kessler Psychological Distress Scale (K10) [69] is a 10-item questionnaire intended to yield a global measure of distress based on questions about anxiety and depressive symptoms that a person has experienced in the most recent 4-week period. Scores will range from 10 to 50. Those with scores under 20 are likely to be well while scores of 20–24 are likely to have a mild mental disorder [70]. Scores of 25–29 or over 30 are likely to have moderate and severe mental disorders, respectively [70].

The Connor Davidson Resilience Scale (CD-RISC-25) [71] is a tool utilized to measure perceived resilience within 17 domains. The tool consists of a 25-item scale within these domains. This tool has been studied extensively and has been demonstrated to be valid and reliable when utilized with survivors of various traumas and PTSD [71].

The Global Resilience Question asks participants to indicate on a scale of 1 (do not agree at all) to 5 (agree a lot), their agreement with the statement, "When things go wrong in my life it generally takes me a long time to get back to normal". Prior to the intervention, participants indicated high agreement with the statement; post-intervention, participants' agreement with this statement significantly decreased, indicating an increase in their self-reported resilience.

2.6. Data Analysis

Quantitative data analysis consisted of descriptive statistical analysis for both the demographic data and standard questionnaires. Differences between groups on all standardized measures were examined and separate repeated measures analysis for each group were conducted. Results were also statistically analyzed for differences between active duty military members, veterans, and RCMP, as well as between males and females.

3. Results

3.1. Descriptive Statistics

A total of 164 individuals completed the pre-intervention survey; demographic information can be viewed in Table 1. A total of 50 participants self-identified as female, 112 participants self-identified as male, and 2 did not wish to identify their sex. Slightly more than half (57%, $n = 96$) of participants reported being married and 9% ($n = 19$) reported being divorced. Most participants reported having the rank of senior non-commissioned members (38%, $n = 63$) and served in the Army (60.2%, $n = 100$). Thirty-eight percent ($n = 63$) of participants reported serving in the Armed Forces between 1976 and 1990, and 71% ($n = 118$) reported being deployed (Table 1). Regarding their medical diagnoses, 71.7% ($n = 119$) of participants reported being diagnosed with a mood disorder, 55.4% ($n = 92$) with an anxiety disorder, and 88% ($n = 146$) with PTSD. Participants had an average ACE score of 3.23. Nine participants dropped out of the current study after enrollment.

Table 1. Participant demographics ($N = 164$).

Participant Demographics		**Frequency (*n*/%)**
Sex	Female	50/30.5
	Male	112/68.3
	Other	2/1.2
Marital Status	Married	96/57.8
	Living common-law	19/11.4
	Widowed	3/1.8
	Separated	18/10.8
	Divorced	15/9
	Single—never married	15/9
Rank	Officer	37/24
	Senior NCO	63/40.9
	Junior NCO	54/35.1
Service Environment	Air (Air Force)	36/24.7
	Land (Army)	100/68.5
	Sea (Navy)	10/6.8
Enrollment	1954–1975	1/0.6
	1976–1990	63/38
	1991–2000	44/26.5
	2001–2016	55/33.1
	2016+	3/1.8
Deployment during service		118/71

3.2. Descriptive Survey Results

To determine if there was a significant difference in scores at the pre/post-intervention and 1-, 3-, 6-, and 12-month time points, repeated measures ANOVA were conducted. While participants were invited to complete all time point surveys, due to attrition and drop out, only pre/post-intervention and 1-, 3-, and 6-month scores were included in the one-way repeated measures ANOVA analysis, as the 12-month sample size was too small to be included in the analysis. Table 2 provides details related to descriptive states of each outcome.

Table 2. Descriptive survey results.

	Pre (M, SD)	**Post (M, SD)**	**1 Month (M, SD)**	**3 Month (M, SD)**	**6 Month (M, SD)**
PCL	661.52 (13.22)	48.58 (18.64)	44.73 (15.31)	47.13 (14.89)	46.15 (15.05)
DASS-Stress	25.04 (8.76)	15.78 (11.15)	17.41 (9.07)	16.74 (9.5)	17.52 (10.07)
DASS-Anxiety	20.43 (8.93)	20.43 (8.93)	12.11 (8.51)	11.57 (8.41)	11.5 (9.3)
DASS-Depression	21.51(10.67)	13.89 (12.33)	13.44 (9.49)	13.44 (9.49)	13.19 (9.23)
MISS-M-SF	66.56 (12.19)	46.62 (15.42)	58.27 (11.22)	60.11 (13.08)	59.67 (12.50)
K10	30.98 (6.95)	26.54 (11.21)	23.02 (6.57)	23.63 (7.58)	22.94 (7.31)
DAR-5	13.93 (4.65)	11.44 (5.73)	10.67 (3.92)	10.65 (3.89)	10.67 (3.83)
CD-RISC-25	84.12 (17.16)	90.21 (17.49)	89.12 (14.31)	88.21(15.08)	90.64 (16.51)
Global Resilience	3.58 (1.13)	3.30 (1.45)	3.20 (1.16)	3.26, (1.23)	3.20 (1.19)

3.3. Quantitative Statistical Analysis

The results of the one-way repeated measures ANOVA demonstrated that there was a significant main effect of time of scores as follows:

- PCL-5 ($F(4, 188) = 20.825$, $p < 0.001$, $\eta p\ 2 = 0.31$);
- DASS-21-stress ($F(4, 212) = 12.7$, $p < 0.001$, $\eta p\ 2 = 0.193$);
- DASS-21-anxiety $F(4, 220) = 20.29$, $p < 0.001$, $\eta p\ 2 = 0.193$);
- DASS-21-depression ($F(4, 224) =$, $p < 0.001$, $\eta p\ 2 = 0.179$);
- MISS-M-SF ($F(4, 144) = 20.98$, $p < 0.001$, $\eta p\ 2 = 0.368$);
- DAR-5($F(4, 216) = 10.73$, $p < 0.001$, $\eta p\ 2 = 0.16$);
- K10 ($F(4, 164) = 4.34$, $p = 0.002$, $\eta p\ 2 = 0.96$);
- CD-RISC-25 ($F(4, 164) = 4.34$, $p = 0.002$, $\eta p\ 2 = 0.96$); and
- Global Resilience ($F(4, 212) = 4.92$, $p < 0.001$, $\eta p\ 2 = 0.085$).

Bonferroni post hoc tests showed that participant scores on the pre-intervention PCL-5, DASS-21 (all subscales), MISS-M-SF, DAR-5, and K10 were significantly different from post-intervention and 1-, 3-, and 6-month scores (Table 3). However, post-intervention and 1-, 3-, and 6-month PCL-5 scores were not significantly different from each other. Similarly, the Bonferroni post hoc tests showed that participant scores on the pre-intervention CD-RISC-25 were significantly different from post-intervention, 1-month, and 6-month scores; however, none of the post-intervention or 1-, 3-, and 6-month CD-RISC-25 scores were significantly different from one another (Table 3). The pre-intervention Global Resilience Question was significantly different from 1-, 3-, and 6-month scores; however, none of the post-intervention or 1-, 3-, and 6-month Global Resilience scores were significantly different from one another (Table 3).

3.4. Comparison Results

Results from an ANOVA analysis indicated that there were no statistical differences between military members, veterans, and RCMP self-reported scores for the ACE, PCL-5, DASS-21 (all subscales), MISS-M-SF, DAR-5, K10, CD-RICS-25, and the Global Resilience Question.

Table 3. Self-report survey results.

	Pre	Post	1 Month	3 Month	6 Month
PCL	<0.001	<0.001	<0.001	<0.001	<0.001
DASS-Stress	<0.001	<0.001	<0.001	<0.001	<0.001
DASS-Anxiety	0.006	0.006	0.006	0.006	0.006
DASS-Depression	<0.001	<0.001	<0.001	<0.001	<0.001
MISS-M-SF	<0.001	<0.001	<0.001	0.002	<0.001
K10	0.026	0.026	0.026	0.026	0.026
DAR-5	0.005	0.005	0.005	0.005	0.005
CD-RISC-25	0.033	0.033	0.033	0.033	0.033
Global Resilience	0.07	0.07	0.07	0.07	0.07

Similarly, the results of an ANOVA analysis of each of the measures indicate that there were no significant differences between the female and gender minorities and male participants in the pre- and post-intervention scores. We opted to only examine the pre- and post-intervention scores, as results of the repeated measures ANOVA indicated that there was a significant difference between the pre-intervention scores and the other time points, but no significant differences between post-intervention and 1-, 3-, and 6-month time points. An independent sample t-test on gender and the ACE indicated that there was a significant difference between males and females in their total ACE scores. Females (3.92) had significantly higher mean scores than males (2.89), $t(158) = 2.54$, $p = 0.012$, indicating that female participants had experienced significantly more childhood trauma than male participants.

3.5. Clinical Relevance and Significance

1. PTSD: The mean participant score of the PCL-5—pre-intervention (M = 61.32)—was substantially greater than the clinical cut-off score of 33, which indicates a probable diagnosis of PTSD. While participants made significant gains post-intervention, with a decreased mean change in scores of 12.94, and maintained this change at each subsequent time point, mean scores were still greater than the clinical cut-off score. Participants continued to report moderate to high levels of PTSD symptoms 6 months post-retreat.
2. Stress: The mean participant pre-intervention DASS-21-stress score of 25.04 indicates that most participants were experiencing moderate levels of stress. While participants made significant gains post-intervention with a decreased mean change in scores of 9.26 and maintained this change at each subsequent time point, however there were slight increases in mean scores. Participants continued to report mild levels of stress 6 months post-retreat.
3. Anxiety: The mean participant pre-intervention DASS-21-anxiety score of 20.43 indicates that most participants were experiencing extremely severe anxiety. Similar to the DASS-21-stress scores, participants made significant gains post-intervention, with a decreased mean change in scores of 4.54, and maintained this change at each subsequent time point, with slight decreases in mean scores. Participants reported experiencing moderate levels of anxiety 6 months post-retreat.
4. Depression: The mean participant pre-intervention DASS-21-depression score of 21.51 indicates that most participants were experiencing severe depression. As with the other subscales of the DASS-21, participants made significant gains post-intervention, with a decreased mean change in scores of 7.61, and maintained this change at each subsequent time point, with slight decreases in mean scores. Participants were still experiencing mild to moderate depression 6 months post-retreat.
5. Anger: The mean pre-intervention score on the DAR-5 (M = 13.93) indicates that most participants were experiencing problems with anger. Participants made significant gains post-intervention, with a decreased mean change in scores of 2.49, and maintained this change at each subsequent time point, with slight decrease in mean

scores in the months following the intervention. Participants were still experiencing problems with anger 6 months post-retreat.

6. Moral Injury: The mean prevention score on the MISS-M-SF (M = 66.57) indicates that most participants were experiencing a greater number of symptoms and most likely a moral injury. Participants made significant gains post-intervention, with a decreased mean change in scores of 19.95; however, scores significantly increased after 1,3, and 6 months. This increase indicates that while participants did experience a reduction in their symptoms, these gains were lost over time. Participants were still experiencing high levels of symptoms related to moral injury 6 months post-retreat.
7. Distress: The mean participant pre-intervention score of the K10 (M = 30.98) indicates that most participants were experiencing severe distress. While participants made significant gains post-intervention, with a decreased mean change in scores of 4.44, and maintained this change at each subsequent time point, with slight decreases in mean scores at each follow-up, participants were still experiencing moderate levels of distress 6 months post-retreat.
8. Resilience: The mean prevention score on the CD-RISC-25 (M = 84.12) indicates that most participants had high resilience. Participants made significant gains post-intervention, with an increased mean change in scores of 6.1, and maintained this change at each subsequent time point. Participants were still experiencing high levels of perceived resilience 6 months post-retreat at follow-up.
9. Global resilience: The mean prevention score on the Global Resilience Question (M = 3.58) indicates that most participants had a moderate level of resilience on this specific question. Participants' post-intervention scores indicated a non-significant decrease; however, this decrease was maintained at each subsequent time point. Participants were still experiencing high levels of perceived resilience 6 months post-retreatat follow-up.

4. Discussion

The purpose of this research was to identify the impact of participation in a non-evidence based trauma-oriented retreat program for military members, veterans, and RCMP experiencing OSIs. This study measured the effect of the intervention on symptoms of PTSD, depression, anxiety, MI, anger, and psychological distress, as well as its ability to increase perceptions of resilience. ACEs were also measured, with the average ACEs of the participants being below 4 (indicating some exposure to adverse childhood experiences) and above the clinical threshold or three adverse events before being at higher risk for mental and physical health challenges [62]. This work was about exploring the effect of the trauma-oriented retreat and should not be interpreted as a program evaluation nor a determination of the evidence-based nature of the retreat.

The study results indicate that participants entered the trauma-oriented retreat with severe PTSD, severe depressive symptoms, extremely severe anxiety, and moderate stress based on classifications and cut-off scores on the selected outcome measures. Participants also experienced problems with anger and overall psychological distress, and were likely to be experiencing MI prior to engaging in the trauma-oriented retreat. Statistically and clinically significant improvements in PTSD, depression, anxiety, and stress scores from pre- to post-intervention were observed, with the effects maintained for up to 6 months. Statistically significant improvements were also noted in the perception of anger problems, overall distress, and MI. The vast majority of the aforementioned gains were maintained at the 6-month conclusion of the study. Generally, there were no significant differences between the 1-, 3-, and 6-month post-intervention scores, demonstrating that improvements were maintained, but did not continue to progress post-treatment. It is also important to note that although significant gains towards recovery were observed, participants continued to maintain their clinical diagnoses post-retreat for PTSD, depression, anxiety, and MI. These results are both similar and contradictory to the literature published on trauma-oriented retreats with statistically significant pre/post-intervention symptom score changes [40,45,72]. Our

results, however, differ, with the exploration of the longitudinal effect of trauma-focused retreats, showing limited further treatment progress and the maintenance of numerous OSI-related conditions. Our results therefore support the growing call for the longitudinal study of the efficacy of trauma-oriented interventions [73].

There are numerous potential explanations as to why sustained changes post-retreat may be limited. One possible explanation may stem from the lack of standard care pathways that would allow for more seamless integration between external community-based programs and standardized mental health care systems within military, veteran, and PSP communities [74,75]. Second, some participants do not have a therapist who is able to prepare them for the retreat and provide follow-up care. In the absence of such a relationship, participants self-refer. While arguments can be made that self-referral allows for individuals to overcome issues of stigma and negative career implications [76–78], our results show that not requiring follow-up mental health care may also be problematic and stunt the psychological recovery and growth achieved on trauma-oriented retreats or other community-based interventions. As a result, the full benefit of these interventions may not be experienced. Third, the cohort composition can impact participants. Careful attention to who attends these retreats and why may also be important (i.e., person at a crisis point) [79], group dynamics and interpersonal factors, along with what post-retreat resources (both formal and informal) are available [80], and the participants' willingness to reach out for help. While, these types of programs may enable psychologically unwell military personnel, veterans and PSP to take a first step towards seeking help, their acuity may be misaligned with program offerings and interfere with the recovery process of others in the cohort. Their participation in the retreat may also inadvertently impede their ability to access timely and appropriate channels of support. In avoiding the system, perceived and legitimate issues of stigma (including self-stigma) can regrettably also be perpetuated [81].

Although this intervention failed to "fully mitigate" participants' mental health disorders, the progress made could facilitate further engagement and gains in other treatments and increased practice of health promoting behaviors. There is a growing awareness and acceptance that treatment of OSIs—especially military-related PTSD—may require multimodal trauma approaches, especially for those who have severe or treatment-resistant PTSD [82,83]. As such, trauma-oriented retreat programs may be beneficial because of their use of different activities which exceed the traditional gold-standard frontline trauma treatment. Research is illustrating that somatic approaches may be effective in treating PTSD [84,85]. Similarly, nature or nature-based activities have been noted to have a therapeutic effect for people experiencing PTSD [86–88].

Despite the elevated prevalence of mental health symptoms among the sample, baseline measures of resilience showed that participants entering the program generally felt they had moderate to high resilience. Although the participants perceived they already possessed some resilience upon entering the program, resilience scores also demonstrated a statistically significant increase post-intervention. Our results therefore raise interesting questions about the potential interplay between resilience and OSIs. While there is a common understanding that greater resilience will result in a decrease in OSI-related mental illness and greater quality of life [89], our results challenge this presumption as our participants had self-perceived resilience scores and higher-than-average OSI mental illness scores. Thus, it may be that military personnel, veterans, and PSP are both highly resilient given the nature of their work (i.e., chronic exposures to traumatic stressor), while also having higher rates of mental illness (e.g., PTSD, MDD, GAD) than comparable civilians [6,9]. Equally, it may be that military, veteran, and PSP populations remain highly resilient despite having OSIs. Similar results have been noted for posttraumatic growth where long-term posttraumatic growth was facilitated and maintained by endorsement rather than an absence of PTSD [90]. As little research has been conducted on the interplay between resilience and OSI, it is unclear if resilience is an assistive component, or a hindrance to these populations [91,92]. As such, it may be that participants' interest and participation in this trauma-oriented retreat could have been an attempt to continue to

use their resilience and independently (and potentially maladaptively) overcome their OSI-related mental illnesses.

Care and caution are significantly warranted in determining if trauma-oriented retreats are indicated as a novel or frontline treatment for OSI among this population. This risk may be further compounded by the realities of taking vulnerable participants and providing treatment in a community-based residential setting where there are likely limited immediate mental health resources. These programs are not standardized, and each is unique in the activities that are offered and by whom (i.e., mental health professionals, medical professionals, peer-supporters, or other staff). For example, trauma-oriented retreats often use a combination of individual and group activities such as meditation, breathing exercises, equine-assisted psychotherapy, outdoor activities (e.g., canoeing, high ropes), spiritual practices (e.g., labyrinth, drumming, fire ceremony), and more. While many of these activities have some evidence to support their use in trauma treatment—namely, meditation [93], breathing exercises [94,95], equine-assisted psychotherapy [96,97], peer support [98,99], and spiritual practices [100,101]—the combination of these practices into holistic programming has not been studied. While these activities may be beneficial for some, they have not been studied with acutely ill clients who require stabilization. Further, given differences in structure, order, frequency, intensity, and duration of the delivery of these activities, program aspects that might be effective are yet unknown, as is whether or not trauma-oriented retreats are efficacious or subject to a placebo type effect [102,103]. The qualifications, education, knowledge, and experience of the staff facilitating the interventions can also vary greatly, which compounds uncertainty as to the effect of trauma-oriented retreats. Concerns have also been raised about the need for greater mental health competency for clinicians engaging in trauma therapy [104,105]. Increased standardization and manualization of trauma-oriented retreats that consider fidelity within the activities and staff training would allow for better quality research to be conducted and ensure safety within these types of programs. Finally, authentic and transparent communications are also essential so that participants are aware of the potential benefits and risks of trauma-oriented retreats.

There are several aspects of this study that require caution while interpreting the results. First, while participants reported a notable decrease in their symptoms post-program, longitudinal effectiveness of this specific trauma-oriented retreat program cannot be deduced from the results of this study. Second, data collected at the set time points may have been significantly impacted by current events occurring in participants' lives. It should also be recognized that our results can only be understood in terms of general trends and associations, and not causation. Third, the effect of trauma-oriented retreats can and should not be generalized across global military populations—each population is specific within significant sub-populations, all of which need their own care and attention. For example, persons experiencing military sexual misconduct should not be seen as needing the same mental health care as a person experiencing combat-related trauma. Finally, and most importantly, a trauma-oriented retreat may not be appropriate for all people, especially those experiencing acute symptoms; who struggle with active suicidal ideation, substance misuse, or personality disorders; or who are not ready and willing to engage in an alternative model of therapy.

4.1. Implications

Results from our study have a number of important implications for the scientific community and also the trauma-affected population at large. Our results highlight the eminent need for further research to be conducted to continue determining the effect of trauma-oriented retreats. Replication of our study could help to determine if both the pre/post-intervention and longitudinal results are valid, with a particular focus on the longitudinal components. The lack of symptoms regression post-retreat may illustrate that these types of programs need additional programming elements or be more properly integrated into standardized or traditional forms of trauma care. More robust research

designs (i.e., randomized control trials) are also needed to address the placebo effect and to determine if trauma-oriented modalities are comparable to gold-standard trauma therapies such as PE or CPT. Critical and comprehensive research is also needed regarding the efficacy of specific components of these types of retreats and which components have more or less effect (e.g., is yoga more important that equine therapy). To date, it is difficult to compare individual trauma-oriented retreats because of the vast differences in potential therapeutic components along with, at times, the lack of an evidence base for these components. Further research may also begin to encourage standardization and manualization of trauma-oriented retreats. Finally, additional research specific to various trauma-affected populations is needed to determine the effectiveness, efficacy, and safety of trauma-oriented retreat programs as well as other programs offered internationally.

For trauma-affected populations, our research may indicate that while trauma-oriented retreats may decrease PTSD and MI symptoms, there is no guarantee that this will be the case. Rather, trauma-affected persons need to be made aware of both the limited research on the efficacy of these modalities and the results to date (i.e., there may be some effect, but this may be limited and non-continuing). This point cannot be overstressed, particularly in light of the growing popularity of these retreats and the significant marketing campaigns that often accompany them, purporting their potential to vastly improve participants' health and wellbeing. Trauma-affected persons should be made aware that trauma-oriented retreats should not be seen as replacing traditional trauma care. Nonetheless, the potential of these retreats to be a complimentary and assistive modality for trauma-affected populations should also not be ignored. Used in the appropriate manner and place, there is a potential for these retreats to address components of PTSD and MI which are not common in standardized and manualized therapies. Such retreats may offer practices of healing that are also not traditionally used, and which may be particularly helpful or meaningful for some participants (e.g., spirituality, animal-assisted treatment). Retreats that focus on healing as a journey and creating a meaningful life may be particularly helpful to and aptly suited for trauma-affected persons who may need greater support beyond symptom reduction.

4.2. Strengths and Limitations

This study contains a number of strengths. First, it adds to the paucity of evidence-based literature regarding trauma-oriented retreats. Second, the study was longitudinal in design, allowing for greater understanding of the long-term effects of a retreat on participants' PTSD and MI symptoms and their overall wellbeing. We believe the longitudinal component exploring trauma-oriented retreats is one of the first of its kind. Third, this study explored a number of mental illnesses and constructs, including MI, which is only recently being explored as a relevant comorbidity for PTSD. Thus, our results also support the burgeoning field of MI research, and particularly, the lack of treatment options to address MI. Fourth, our sample was statistically powered, allowing for greater confidence in study results. Finally, our study specifically explored a community-based program which is often overlooked in research.

There are several important limitations to consider regarding this study. First, convenience sampling was used to recruit participants and thus, the sample may be biased as participants were recruited directly through the trauma-oriented retreat rather than an external third party. Participants in the retreat are self-selected, with word-of-mouth being the most frequent form of enrollment in the program. Second, participants were already screened by a medical team at the retreat prior to being accepted into a cohort, resulting in a selective sample from which the study could draw upon. Third, all participants were provided with finances to attend this program via grant funding. For many participants, it would not be possible to attend the program without this funding. This reality may have influenced participants' openness to try the program and their sense of gratitude for receiving psychotherapeutic support, which may have been directed to the program rather than the actual funding source. Participants might have developed a feeling of loyalty to

the program and staff due to this financial support, and thus may have been more hesitant to report unfavorable post-intervention scores.

As the research team members were not physically present during the on- and off-boarding processes, it is possible that participants may have misunderstood aspects of the process and therefore answered the standardized questionnaires incorrectly. Additionally, all data were collected remotely. It is possible that participants did not complete their longitudinal surveys because they never received the email containing the link, or experienced technical difficulties and did not reach out to the research team for help. Ensuring a homogenous sample in terms of employment status (i.e., active duty, veteran, first responder) was challenging as many military veterans often serve in the CAF reserves, or in first responder roles and thus continue to be exposed to occupational stressors and trauma.

All data were self-reported, allowing for the possibility of self-reported biases. For some participants, it may have been the initial relief of receiving support, care, and attention rather than the intervention itself that led to a decrease in outcome measure scores.

Despite the sample size being quantitatively powered, the sample size of research participants was, overall, limited. The vast majority of participants were male, and a more diverse sample would assist with determining conclusions. As well, this study was conducted during the COVID-19 pandemic, and therefore, there were delays in the data collection when the program had to close down due to public health policies.

5. Conclusions

The results from this study have illustrated that trauma-oriented retreats may be a complementary treatment modality for OSI-related conditions. Further research, however, needs to be conducted to ensure that trauma-oriented retreats are safe and effective, particularly longitudinally, as results to date have shown limited effect of these modalities on long-term symptom improvement. Without confirmation of this ability, trauma-oriented retreats may be helpful as either an initial point of treatment or a point of treatment when there is a need to shift modalities, but should not be seen as a frontline treatment option.

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Institutional Review Board Statement: This study was conducted according to the guidelines of the Declaration of Helsinki, and the protocol was approved by the University Research Ethics Board of the University of Alberta (Pro00086960) and the CAF Surgeon General's Endorsement (E2019-02-250-003-0005).

Informed Consent Statement: All subjects gave their informed consent for inclusion before they participated in this study.

Data Availability Statement: The data that support the findings of this study may be available on request from the corresponding author, S.B.-P. The data are not publicly available due to their containing information that could compromise the privacy of research participants.

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References

1. Vermetten, E.; Greenberg, N.; Boeschoten, M.A.; Delahaije, R.; Jetly, R.; Castro, C.A.; McFarlane, A.C. Deployment-related mental health support: Comparative analysis of NATO and allied ISAF partners. *Eur. J. Psychotraumatol.* **2014**, *5*, 23732. [CrossRef]
2. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders*, 5th ed.; American Psychiatric Association Publication: Washington, DC, USA, 2013.
3. Milliken, C.S.; Auchterlonie, J.L.; Hoge, C.W. Longitudinal Assessment of Mental Health Problems Among Active and Reserve Component Soldiers Returning from the Iraq War. *JAMA* **2007**, *298*, 2141–2148. [CrossRef]
4. Wagner, A.; Jakupcak, M. Combat-Related Stress Reactions Among U.S. Veterans of Wartime Service. In *The Oxford Handbook of Military Psychology*; Laurence, J.H., Matthew, M.D., Eds.; Oxford University Press: Oxford, UK, 2012; Chapter 3; pp. 15–28.
5. Fulton, J.J.; Calhoun, P.S.; Wagner, H.R.; Schry, A.R.; Hair, L.P.; Feeling, N.; Elbogen, E.; Beckham, J.C. The prevalence of posttraumatic stress disorder in Operation Enduring Freedom/Operation Iraqi Freedom (OEF/OIF) veterans: A meta-analysis. *J. Anxiety Disord.* **2015**, *31*, 98–107. [CrossRef] [PubMed]
6. Van Til, L.D.; Sweet, J.; Poirier, A.; McKinnon, K.; Sudom, K.; Dursun, S.; Pedlar, D. *Well-Being of Canadian Regular Force Veterans, Findings from LASS 2016 Survey*; Research Directorate Technical Report; Veterans Affairs Canada: Charlottetown, PE, Canada, 2017. Available online: http://publications.gc.ca/pub?id=9.839366&sl=0 (accessed on 16 October 2021).
7. Pearson, C.; Zamorski, M.; Janz, T. Mental Health of the Canadian Armed Forces. Statistics Canada; 2014. Available online: https://www150.statcan.gc.ca/n1/en/pub/82-624-x/2014001/article/14121-eng.pdf?st=V-DJPAo (accessed on 14 October 2021).
8. 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; CIPSRT: Regina, SK, Canada, 2019. Available online: http://hdl.handle.net/10294/9055 (accessed on 16 October 2021).
9. Carleton, R.N.; Afifi, T.O.; Taillieu, T.; Turner, S.; Krakauer, R.; Anderson, G.S.; MacPhee, R.S.; Ricciardelli, R.; Cramm, H.A.; Groll, D.; et al. Exposure to Potentially Traumatic Events Among Public Safety Personnel in Canada. *J. Behav. Sci.* **2016**, *51*, 37–52. [CrossRef]
10. Carleton, R.N.; Afifi, T.O.; Turner, S.; Taillieu, T.; Duranceau, S.; LeBouthillier, D.M.; Sareen, J.; Ricciardelli, R.; Macphee, R.S.; Groll, D.; et al. Mental Disorder Symptoms among Public Safety Personnel in Canada. *Can. J. Psychiatry* **2018**, *63*, 54–64. [CrossRef] [PubMed]
11. Royal Canadian Mounted Police. About the RCMP. Available online: https://www.rcmp-grc.gc.ca/en/about-rcmp (accessed on 16 November 2021).
12. Di Nota, P.M.; Anderson, G.S.; Ricciardelli, R.; Carleton, R.N.; Groll, D. Mental disorders, suicidal ideation, plans, and attempts among Canadian Police. *Occup. Med.* **2020**, *70*, 183–190. [CrossRef]
13. Horswill, S.C.; Jones, N.A.; Carleton, R.N. Psychosocial factors associated with Canadian police officers' susceptibility to posttraumatic stress and growth. *Can. J. Behav. Sci.* **2021**, *53*, 285–295. [CrossRef]
14. Jinkerson, J.D. Defining and assessing moral injury: A syndrome perspective. *Traumatology* **2016**, *22*, 122–130. [CrossRef]
15. Griffin, B.J.; Purcell, N.; Burkman, K.; Litz, B.T.; Bryan, C.J.; Schmitz, M.; Villierme, C.; Walsh, J.; Maguen, S. Moral injury: An integrative review. *J. Trauma. Stress* **2019**, *32*, 350–362. [CrossRef]
16. Ames, D.; Erickson, Z.; Youssef, N.A.; Arnold, I.; Adamson, C.S.; Sones, A.C.; Yin, J.; Haynes, K.; Volk, F.; Teng, E.J.; et al. Moral injury, religiosity, and suicide risk in US veterans and active duty military with PTSD symptoms. *Mil. Med.* **2019**, *184*, e271–e278. [CrossRef]
17. Koenig, H.G.; Ames, D.; Büssing, A. Screening for and treatment of moral injury in veterans/active duty military with PTSD. *Front. Psychiatry* **2019**, *10*, 596. [CrossRef] [PubMed]
18. Bryan, A.O.; Bryan, C.J.; Morrow, C.E.; Etienne, N.; Ray-Sannerud, B. Moral injury, suicidal ideation, and suicide attempts in a military sample. *Traumatology* **2014**, *20*, 154–160. [CrossRef]
19. Bryan, C.J.; Bryan, A.O.; Roberge, E.; Leifker, F.R.; Rozek, D.C. Moral injury, posttraumatic stress disorder, and suicidal behavior among National Guard personnel. *Psychol. Trauma* **2018**, *10*, 36–45. [CrossRef] [PubMed]
20. Smith-MacDonald, L.; Lentz, L.; Malloy, D.; Brémault-Phillips, S.; Carleton, R.N. Meat in a Seat: A Grounded Theory Study Exploring Moral Injury in Canadian Public Safety Communicators, Firefighters, and Paramedics. *Int. J. Environ. Res. Public Health* **2021**, *18*, 12145. [CrossRef] [PubMed]
21. Wisco, B.E.; Marx, B.P.; May, C.L.; Martini, B.; Krystal, J.H.; Southwick, S.M.; Pietrzak, R.H. Moral injury in US combat veterans: Results from the national health and resilience in veterans study. *Depress. Anxiety* **2017**, *34*, 340–347. [CrossRef]
22. Farnsworth, J.K.; Drescher, K.D.; Nieuwsma, J.A.; Walser, R.B.; Currier, J.M. The role of moral emotions in military trauma: Implications for the study and treatment of moral injury. *Rev. Gen. Psychol.* **2014**, *18*, 249–262. [CrossRef]
23. Farnsworth, J.K.; Drescher, D.K.; Evans, W.; Walser, R.D. A functional approach to understanding and treating military-related moral injury. *J. Contextual Behav. Sci.* **2017**, *6*, 391–397. [CrossRef]
24. Chesnut, R.P.; Richardson, C.B.; Morgan, N.R.; Bleser, J.A.; Perkins, D.F.; Vogt, D.; Copeland, L.A.; Finley, E. Moral Injury and Social Well-Being: A Growth Curve Analysis. *J. Trauma. Stress* **2020**, *33*, 587–597. [CrossRef]
25. Houtsma, C.; Khazem, L.R.; Green, B.A.; Anestis, M.D. Isolating effects of moral injury and low post-deployment support within the US military. *Psychiatry Res.* **2017**, *247*, 194–199. [CrossRef]
26. Brémault-Phillips, S.; Pike, A.; Scarcella, F.; Cherwick, T. Spirituality and moral injury among military personnel: A mini-review. *Front. Psychiatry* **2019**, *10*, 276. [CrossRef] [PubMed]

27. Litz, B.T.; Kerig, P.K. Introduction to the special issue on moral injury: Conceptual challenges, methodological issues, and clinical applications. *J. Trauma. Stress* **2019**, *32*, 341–349. [CrossRef]
28. Bisson, J.I.; Berliner, L.; Cloitre, M.; Forbes, D.; Jensen, T.K.; Lewis, C.; Monson, C.M.; Olff, M.; Pilling, S.; Riggs, D.S.; et al. The International Society for Traumatic Stress Studies new guidelines for the prevention and treatment of PTSD: Methodology and development process. *J. Trauma. Stress* **2019**, *32*, 475–483. [CrossRef] [PubMed]
29. Sciarrino, N.A.; Warnecke, A.J.; Teng, E.J. A systematic review of intensive empirically supported treatments for posttraumatic stress disorder. *J. Trauma. Stress* **2020**, *33*, 443–454. [CrossRef] [PubMed]
30. Department of Veterans Affairs Department of Defense. VA/DOD Clinical Practice Guidelines for the Management of Posttraumatic Stress Disorder and Acute Stress Disorder. 2017. Available online: https://www.healthquality.va.gov/guidelines/MH/ptsd/VADoDPTSDCPGFinal.pdf (accessed on 24 October 2021).
31. Coventry, P.A.; Meader, N.; Melton, H.; Temple, M.; Dale, H.; Wright, K.; Cloitre, M.; Karatzias, T.; Bisson, J.; Roberts, N.P.; et al. Psychological and pharmacological interventions for posttraumatic stress disorder and comorbid mental health problems following complex traumatic events: Systematic review and component network meta-analysis. *PLoS Med.* **2020**, *17*, 1–34. [CrossRef]
32. Steenkamp, M.M.; Litz, B.T.; Marmar, C.R. First-line Psychotherapies for Military-related PTSD. *JAMA* **2020**, *323*, 656–657. [CrossRef]
33. Steenkamp, M.M.; Litz, B.T.; Hoge, C.W.; Marmar, C.R. Psychotherapy for Military-Related PTSD: A Review of Randomized Clinical Trials. *JAMA* **2015**, *314*, 489–500. [CrossRef]
34. Kitchiner, N.J.; Lewis, C.; Roberts, N.P.; Bisson, J.I. Active Duty and Ex-Serving Military Personnel with Post-Traumatic Stress Disorder Treated with Psychological Therapies: Systematic Review and Meta-Analysis. *Eur. J. Psychotraumatol.* **2019**, *10*, 1684226. [CrossRef]
35. Resick, P.A.; Wachen Schuster, J.; Dondanville, K.A.; Pruiksma, K.E.; Yarvis, J.S.; Peterson, A.L.; Mintz, J.; STRONG STAR Consortium. Effect of Group vs. Individual Cognitive Processing Therapy in Active-Duty Military Seeking Treatment for Posttraumatic Stress Disorder: A Randomized Clinical Trial. *JAMA Psychiatry* **2017**, *74*, 28–36. [CrossRef]
36. Foa, E.B.; McLean, C.P.; Zang, Y.; Rosenfield, D.; Yadin, E.; Yarvis, E.; Mintz, J.; Young-McCaughan, S.; Borah, E.V.; Dondanville, K.A.; et al. Effect of Prolonged Exposure Therapy Delivered Over 2 Weeks vs 8 Weeks vs Present-Centered Therapy on PTSD Symptoms Severity in Military Personnel: A Randomized Clinical Trial. *JAMA* **2018**, *319*, 354–364. [CrossRef]
37. Hamner, M.B.; Robert, S.; Frueh, B.C. Treatment-resistant posttraumatic stress disorder: Strategies for intervention. *CNS Spectr.* **2004**, *9*, 740–752. [CrossRef] [PubMed]
38. Sippel, L.M.; Holtzheimer, P.E.; Friedman, M.J.; Schnurr, P.P. Defining treatment-resistant posttraumatic stress disorder: A framework for future research. *Biol. Psychiatry* **2018**, *84*, e37–e41. [CrossRef] [PubMed]
39. O'Hara, C. Introduction to Military and Veteran Retreats. *Am. Inst. Stress Combat. Stress* **2017**, *6*, 4–6.
40. Monk, J.K.; Ogolsky, B.G.; Bruner, V. Veteran couples integrative intensive retreat model: An intervention for military veterans and their relational partners. *J. Couple Relatsh. Ther.* **2016**, *15*, 158–176. [CrossRef]
41. Cox, D.W.; Westwood, M.J.; Hoover, S.M.; Chan, E.K.; Kivari, C.A.; Dadson, M.R.; Zumbo, B.D. Evaluation of a group intervention for veterans who experienced military-related trauma. *Int. J. Group Psychother.* **2014**, *64*, 367–380. [CrossRef] [PubMed]
42. Kamena, M.; Galvez, H. Intensive residential treatment program: Efficacy for emergency responders' critical incident stress. *J. Police Crim. Psychol.* **2020**, *35*, 75–81. [CrossRef]
43. Gill, C. Essays Exploring the Restorative Potential, Experiences and Outcomes of Spiritual Retreats. Ph.D. Thesis, University of Queensland, Brisbane, Australia, 2018.
44. Smith-MacDonald, L.; Norris, J.M.; Raffin-Bouchal, S.; Sinclair, S. Spirituality and mental well-being in combat veterans: A systematic review. *Mil. Med.* **2017**, *182*, e1920–e1940. [CrossRef] [PubMed]
45. Thomas, K.H.; McDaniel, J.T.; Albright, D.L.; Fletcher, K.L.; Koenig, H.G. Spiritual fitness for military veterans: A curriculum review and impact evaluation using the Duke Religion Index (DUREL). *J. Relig. Health* **2018**, *57*, 1168–1178. [CrossRef]
46. Currier, J.M.; Foster, J.D.; Isaak, S.L. Moral injury and spiritual struggles in military veterans: A latent profile analysis. *J. Trauma. Stress* **2019**, *32*, 393–404. [CrossRef]
47. Wortmann, J.H.; Eisen, E.; Hundert, C.; Jordan, A.H.; Smith, M.W.; Nash, W.P.; Litz, B.T. Spiritual features of war-related moral injury: A primer for clinicians. *Spirit. Clin. Pract.* **2017**, *4*, 249–261. [CrossRef]
48. Carey, L.B.; Hodgson, T.J.; Krikheli, L.; Soh, R.Y.; Armour, A.R.; Singh, T.K.; Impiombato, C.G. Moral injury, spiritual care and the role of chaplains: An exploratory scoping review of literature and resources. *J. Relig. Health* **2016**, *55*, 1218–1245. [CrossRef] [PubMed]
49. Drescher, K.D.; Currier, J.M.; Nieuwsma, J.A.; McCormick, W.; Carroll, T.D.; Sims, B.M.; Cauterucio, C. A qualitative examination of VA chaplains' understandings and interventions related to moral injury in military veterans. *J. Relig. Health* **2018**, *57*, 2444–2460. [CrossRef]
50. Shaw, A.; Joseph, S.; Linley, P.A. Religion, spirituality, and posttraumatic growth: A systematic review. *Ment. Health Relig. Cult.* **2005**, *8*, 1–11. [CrossRef]
51. Brewer-Smyth, K.; Koenig, H.G. Could spirituality and religion promote stress resilience in survivors of childhood trauma? *Issues Ment. Health Nurs.* **2014**, *35*, 251–256. [CrossRef] [PubMed]
52. Roberto, A.; Sellon, A.; Cherry, S.T.; Hunter-Jones, J.; Winslow, H. Impact of spirituality on resilience and coping during the COVID-19 crisis: A mixed-method approach investigating the impact on women. *Health Care Women Int.* **2020**, *41*, 1313–1334. [CrossRef] [PubMed]

53. de la Rosa, I.A.; Barnett-Queen, T.; Messick, M.; Gurrola, M. Spirituality and resilience among Mexican American IPV survivors. *J. Interpers. Violence* **2016**, *31*, 3332–3351. [CrossRef] [PubMed]
54. APA Dictionary of Psychology. Resilience. American Psychological Association. Available online: https://dictionary.apa.org/resilience (accessed on 15 December 2021).
55. Agaibi, C.E.; Wilson, J.P. Trauma, PTSD, and resilience: A review of the literature. *Trauma Violence Abus.* **2005**, *6*, 195–216. [CrossRef]
56. Pietrzak, R.H.; Johnson, D.C.; Goldstein, M.B.; Malley, J.C.; Rivers, A.J.; Morgan, C.A.; Southwick, S.M. Psychosocial buffers of traumatic stress, depressive symptoms, and psychosocial difficulties in veterans of Operations Enduring Freedom and Iraqi Freedom: The role of resilience, unit support, and postdeployment social support. *J. Affect. Disord.* **2010**, *120*, 188–192. [CrossRef]
57. Pietrzak, R.H.; Johnson, D.C.; Goldstein, M.B.; Malley, J.C.; Southwick, S.M. Psychological resilience and postdeployment social support protect against traumatic stress and depressive symptoms in soldiers returning from Operations Enduring Freedom and Iraqi Freedom. *Depress. Anxiety* **2009**, *26*, 745–751. [CrossRef]
58. Green, K.T.; Calhoun, P.S.; Dennis, M.F.; Beckham, J. Exploration of the resilience construct in posttraumatic stress disorder severity and functional correlates in military combat veterans who have served since September 11, 2001. *J. Clin. Psychiatry* **2010**, *71*, 823–830. [CrossRef]
59. Vyas, K.J.; Fesperman, S.F.; Nebeker, B.J.; Gerard, S.K.; Boyd, N.D.; Delaney, E.M.; Webb-Murphy, J.A.; Johnston, C.S.L. Preventing PTSD and depression and reducing health care costs in the military: A call for building resilience among service members. *Mil. Med.* **2016**, *181*, 1240–1247. [CrossRef] [PubMed]
60. Hourani, L.; Bender, R.H.; Weimer, B.; Peeler, R.; Bradshaw, M.; Lane, M.; Larson, G. Longitudinal study of resilience and mental health in marines leaving military service. *J. Affect. Disord.* **2012**, *139*, 154–165. [CrossRef]
61. Pietrzak, R.H.; Cook, J.M. Psychological resilience in older US veterans: Results from the national health and resilience in veterans study. *Depress. Anxiety* **2013**, *30*, 432–443. [CrossRef] [PubMed]
62. Felitti, V.J.; Anda, R.F.; Nordenberg, D.; Williamson, D.F.; Spitz, A.M.; Edwards, V.; Koss, M.P.; Marks, J.S. Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The Adverse Childhood Experiences (ACE) Study. *Am. J. Prev. Med.* **1998**, *14*, 245–258. [CrossRef]
63. Weathers, F.W.; Litz, B.T.; Keane, T.M.; Palmieri, P.A.; Marx, B.P.; Schnurr, P.P. The PTSD Checklist for DSM-5 (PCL-5)—LEC-5 and Extended Criterion A 2013. Available online: https://www.ptsd.va.gov/professional/assessment/adult-sr/ptsd-checklist.asp (accessed on 18 November 2021).
64. Center for PTSD. PTSD Checklist for DSM-5 (PCL-5). Available online: https://www.ptsd.va.gov/professional/assessment/documents/using-PCL5.pdf (accessed on 16 December 2021).
65. Lovibond, S.H.; Lovibond, P.F. *Manual for the Depression Anxiety & Stress Scales*, 2nd ed.; Psychology Foundation: Sydney, Australia, 1995.
66. Koenig, H.; Ames, D.; Youssef, N.A.; Oliver, J.P.; Volk, F.; Teng, E.J.; Haynes, K.; Erickson, Z.D.; Arnold, I.; O'Garo, K.; et al. Pearce Screening for Moral Injury: The Moral Injury Symptom Scale—Military Version Short Form. *Mil. Med.* **2018**, *183*, e659–e665. [CrossRef] [PubMed]
67. Forbes, D.; Alkemade, N.; Mitchell, D.; Elhai, J.D.; McHugh, T.; Bates, G.; Novaco, R.W.; Bryant, R.; Lewis, V. Utility of the dimensions of anger reactions-5 (DAR-5) scale as a brief anger measure. *Depress. Anxiety* **2014**, *31*, 166–173. [CrossRef] [PubMed]
68. Forbes, D.; Hawthorne, G.; Elliott, P.; McHugh, T.; Biddle, D.; Creamer, M.; Novaco, R.W. A concise measure of anger in combat-related posttraumatic stress disorder. *J. Trauma. Stress* **2004**, *17*, 249–256. [CrossRef] [PubMed]
69. Kessler, R.C.; Andrews, G.; Colpe, L.J.; Hiripi, E.; Mroczek, D.K.; Normand, S.L.; Walters, E.E.; Zaslavsky, A.M. Short screening scales to monitor population prevalence and trends in non-specific psychological distress. *Psychol. Med.* **2002**, *32*, 959–976. [CrossRef]
70. Andrews, G.; Slade, T. Interpreting scores on the Kessler Psychological Distress Scale (k10). *Aust. N. Z. J. Public Health* **2001**, *25*, 494–497. [CrossRef]
71. Connor, K.M.; Davidson, J.R.T. Development of a new resilience scale: The Connor- Davidson Resilience Scale (CD-RISC). *Depress. Anxiety* **2003**, *18*, 76–82. [CrossRef]
72. Murray-Swank, N.A.; Dausch, B.M.; Murray-Swank, A.B. The implementation of a mindfulness-oriented retreat intervention for rural women veterans. *Mindfulness* **2020**, *11*, 333–349. [CrossRef]
73. De Jongh, A.; Resick, P.A.; Zoellner, L.A.; van Minnen, A.; Lee, C.W.; Monson, C.M.; Foa, E.B.; Wheeler, K.; Broeke, E.T.; Feeny, N.; et al. Critical analysis of the current treatment guidelines for complex PTSD in adults. *Depress. Anxiety* **2016**, *33*, 359–369. [CrossRef] [PubMed]
74. NICE. Common Mental Health Problems: Identification and Pathways to Care. Available online: https://www.nice.org.uk/guidance/cg123 (accessed on 15 December 2021).
75. Bower, P.; Gilbody, S. Stepped care in psychological therapies: Access, effectiveness and efficiency. Narrative literature review. *Br. J. Psychiatry* **2005**, *186*, 11–17. [CrossRef] [PubMed]
76. Hoge, C.W.; Castro, C.A.; Messer, S.C.; McGurk, D.; Cotting, D.I.; Koffman, R.L. Combat duty in Iraq and Afghanistan, mental health problems, and barriers to care. *N. Engl. J. Med.* **2004**, *351*, 13–22. [CrossRef]
77. Stecker, T.; Fortney, J.C.; Hamilton, F.; Ajzen, I. An assessment of beliefs about mental health care among veterans who served in Iraq. *Psychiatr. Serv.* **2007**, *58*, 1358–1361.
78. Tanielian, T.; Jaycox, L. (Eds.) *Invisible Wounds of War: Psychological and Cognitive Injuries, Their Consequences, and Services to Assist Recovery*; RAND: Santa Monica, CA, USA, 2008.

79. Murphy, D.; Hunt, E.; Luzon, O.; Greenberg, N. Exploring positive pathways to care for members of the UK Armed Forces receiving treatment for PTSD: A qualitative study. *Eur. J. Psychotraumatol.* **2014**, *5*, 21759. [CrossRef]
80. Baldwin, C.M.; Long, K.; Kroesen, K.; Brooks, A.J.; Bell, I.R. A profile of military veterans in the southwestern United States who use complementary and alternative medicine: Implications for integrated care. *Arch. Intern. Med.* **2002**, *162*, 1697–1704. [CrossRef]
81. Dickstein, B.D.; Vogt, D.S.; Handa, S.; Litz, B.T. Targeting self-stigma in returning military personnel and veterans: A review of intervention strategies. *Mil. Psychol.* **2010**, *22*, 224–236. [CrossRef]
82. Mert, A.; Vermetten, E. Military motion-based memory desensitization and reprocessing (3MDR): A novel treatment for posttraumatic stress disorder—Proof of concept. *J. Cyberther. Rehabil.* **2011**, *4*, 212–215.
83. Jones, C.; Smith-MacDonald, L.; Miguel-Cruz, A.; Pike, A.; van Gelderen, M.; Lentz, L.; Shiu, M.Y.; Tang, E.; Sawalha, J.; Greenshaw, A.; et al. Virtual Reality–Based Treatment for Military Members and Veterans with Combat-Related Posttraumatic Stress Disorder: Protocol for a Multimodular Motion-Assisted Memory Desensitization and Reconsolidation Randomized Controlled Trial. *JMIR Res. Protoc.* **2020**, *9*, e20620. [CrossRef]
84. Rademaker, A.R.; Vermetten, E.; Kleber, R.J. Multimodal exposure-based group treatment for peacekeepers with PTSD: A preliminary evaluation. *Mil. Psychol.* **2009**, *21*, 482–496. [CrossRef]
85. Brom, D.; Stokar, Y.; Lawi, C.; Nuriel-Porat, V.; Ziv, Y.; Lerner, K.; Ross, G. Somatic experiencing for posttraumatic stress disorder: A randomized controlled outcome study. *J. Trauma. Stress* **2017**, *30*, 304–312. [CrossRef] [PubMed]
86. Gene-Cos, N.; Fisher, J.; Ogden, P.; Cantrell, A. Sensorimotor psychotherapy group therapy in the treatment of complex PTSD. *Ann. Psychiatry Ment. Health* **2016**, *4*, 1080.
87. Poulsen, D.V. Nature-based therapy as a treatment for veterans with PTSD: What do we know? *J. Public Ment. Health* **2017**, *16*, 15–20. [CrossRef]
88. Caddick, N.; Smith, B.; Phoenix, C. The effects of surfing and the natural environment on the well-being of combat veterans. *Qual. Health Res.* **2015**, *25*, 76–86. [CrossRef]
89. Dietrich, Z.C.; Joye, S.W.; Garcia, J.A. Natural medicine: Wilderness experience outcomes for combat veterans. *J. Exp. Educ.* **2015**, *38*, 394–406.
90. Joyce, S.; Tan, L.; Shand, F.; Bryant, R.A.; Harvey, S.B. Can resilience be measured and used to predict mental health symptomology among first responders exposed to repeated trauma? *J. Occup. Environ. Med.* **2019**, *61*, 285–292. [CrossRef]
91. Dekel, S.; Ein-Dor, T.; Solomon, Z. Posttraumatic growth and posttraumatic distress: A longitudinal study. *Psychol. Trauma Theory Res. Pract. Policy* **2012**, *4*, 94–101. [CrossRef]
92. Bonanno, G.A. Resilience in the face of potential trauma. *Curr. Dir. Psychol. Sci.* **2005**, *14*, 135–138. [CrossRef]
93. Keenan, E.K. Seeing the forest and the trees: Using dynamic systems theory to understand "stress and coping" and "trauma and resilience". *J. Hum. Behav. Soc. Environ.* **2010**, *20*, 1038–1060. [CrossRef]
94. Hilton, L.; Maher, A.R.; Colaiaco, B.; Apaydin, E.; Sorbero, M.E.; Booth, M.; Shanman, R.M.; Hempel, S. Meditation for posttraumatic stress: Systematic review and meta-analysis. *Psychol. Trauma* **2017**, *9*, 453–460. [CrossRef] [PubMed]
95. Kim, S.H.; Schneider, S.M.; Bevans, M.; Kravitz, L.; Mermier, C.; Qualls, C.; Burge, M.R. PTSD symptom reduction with mindfulness-based stretching and deep breathing exercise: Randomized controlled clinical trial of efficacy. *J. Clin. Endocrinol. Metab.* **2013**, *98*, 2984–2992. [CrossRef] [PubMed]
96. Seppälä, E.M.; Nitschke, J.B.; Tudorascu, D.L.; Hayes, A.; Goldstein, M.R.; Nguyen, D.T.; Perlman, D.; Davidson, R. Breathing-based meditation decreases posttraumatic stress disorder symptoms in US Military veterans: A randomized controlled longitudinal study. *J. Trauma. Stress* **2014**, *27*, 397–405. [CrossRef] [PubMed]
97. Gehrke, E.K.; Noquez, A.E.; Ranke, P.L.; Myers, M.P. Measuring the psychophysiological changes in combat Veterans participating in an equine therapy program. *J. Mil. Veteran. Fam. Health* **2018**, *4*, 60–69. [CrossRef]
98. Lanning, B.A.; Krenek, N. Examining effects of equine-assisted activities to help combat veterans improve quality of life. *J. Rehabil. Res. Dev.* **2013**, *50*, vii–xii.
99. Jain, S.; McLean, C.; Adler, E.P.; Rosen, C.S. Peer support and outcome for veterans with posttraumatic stress disorder (PTSD) in a residential rehabilitation program. *Community Ment. Health J.* **2016**, *52*, 1089–1092. [CrossRef]
100. Kumar, A.; Azevedo, K.J.; Factor, A.; Hailu, E.; Ramirez, J.; Lindley, S.E.; Jain, S. Peer support in an outpatient program for veterans with posttraumatic stress disorder: Translating participant experiences into a recovery model. *Psychol. Serv.* **2019**, *16*, 415–424. [CrossRef]
101. Bormann, J.E.; Liu, L.; Thorp, S.R.; Lang, A.J. Spiritual wellbeing mediates PTSD change in veterans with military-related PTSD. *Int. J. Behav. Med.* **2012**, *19*, 496–502. [CrossRef]
102. Sherman, M.D.; Harris, J.I.; Erbes, C. Clinical approaches to addressing spiritual struggle in veterans with PTSD. *Prof. Psychol. Res. Pract.* **2015**, *46*, 203–212. [CrossRef]
103. Beecher, H.K. The powerful placebo. *JAMA* **1955**, *159*, 1602–1606. [CrossRef]
104. Moerman, D.E.; Jonas, W.B. Deconstructing the placebo effect and finding the meaning response. *Ann. Intern. Med.* **2002**, *136*, 471–476. [CrossRef] [PubMed]
105. Cook, J.M.; Newman, E.; Simiola, V. Trauma training: Competencies, initiatives, and resources. *Psychotherapy* **2019**, *56*, 409–421. [CrossRef] [PubMed]