Patterns of distress in the context of moral stressors: Validity of the moral injury construct and its association with PTSD and depression within and outside the military context

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Thesis submitted to the University of Ottawa
in partial fulfillment of the requirements for the
degree of Doctor of Philosophy in Clinical Psychology

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ABSTRACT

Moral injury (MI) is a term that is increasingly being used to describe the psycho-spiritual consequences of events that deeply transgress an individual's core human values. Stemming most predominantly from the literature on military mental health, MI is understood to be characterized by intense moral emotions such as guilt, shame and anger, as well as existential and spiritual conflict prompted by an event that has deeply disrupted an individual's beliefs about themselves and the world. Emerging research has shown that exposure to such events as well as particular features of MI distress are associated with increased incidence and severity of mental health problems, such as PTSD and depression. To date, the majority of the research on MI has been conducted in the military context, most predominantly in the United States. Thus, the two studies included in this dissertation come together to evaluate the construct validity of MI by assessing whether a) the patterns of distress identified in military populations to date could also be observed in the Canadian military context, and b) the patterns of distress most pertinent to MI thus identified in the occupational stress literature could be observed in the general population in the context of the COVID-19 pandemic. In Study 1, treatment-seeking military members and Veterans (n = 18) completed a semi-structured interview about the impact of military experiences that deeply disrupted their core beliefs and values. A qualitative analysis was performed and yielded eight main themes: change in moral attitude, increased sensitivity and reactivity to moral situations, loss of trust, disruptions in identity, disruptions in spirituality, disruptions in interpersonal relatedness, rumination, and internalizing and externalizing emotions and behaviours. In addition to the participants who completed the interview, an additional 37 participants (n = 55) completed structured diagnostic interview and self-report measures of exposure to potentially morally injurious events (PMIEs), combat exposure, guilt, anger, posttraumatic stress disorder (PTSD) and

depression. Quantitative analyses revealed that PMIE exposure, but not combat exposure, was related to psychological distress, most notably to symptoms of PTSD. In Study 2, participants recruited from the general population (*n* = 355) completed an online survey assessing a) exposure to and appraisals of morally-laden COVID-19 stressors, b) mental health symptoms, and c) dispositional characteristics including trait emotions, anxiety sensitivity, sense of duty, and religiosity/spirituality. Path analysis revealed specific indirect associations between self-based moral appraisals and PTSD and depression through guilt, and between both self- and other-based moral appraisals and PTSD and depression through anger. Number of COVID-19 stressors had no influence on these associations. Sense of duty, reparative guilt, and anxiety sensitivity best predicted negative moral appraisals. Together, findings from these studies provide support for the MI construct and extend existing findings by showing that the associations among key features of MI and mental health can be observed in various contexts, and that patterns of distress theorized to comprise the MI construct likely extend to lower-level stressors outside the military context. Potential mechanisms regarding the etiology and maintenance of psychological distress in the context of MI were also identified (e.g., moral appraisals and cognitive features such as rumination), which require further investigation. A better understanding of MI across contexts is likely to help refine approaches to clinical case conceptualization and treatment for those at risk of mental health problems in the aftermath of morally distressing events.

ACKNOWLEDGMENTS

This research program was financially supported by the Royal's Institute of Mental Health Research, the Province of Ontario, Wounded Warriors Canada, and the Canadian Institute of Military and Veteran Health Research. Thank you to these organizations for making this work possible.

I would like to sincerely thank my doctoral advisor, Dr. Andrea Ashbaugh for being an invaluable source of support and encouragement throughout my doctoral training. Thank you for your willingness to accompany me into the previously unchartered territory of moral injury. Thank you for trusting me, believing in my abilities and my growth, and for keeping me grounded and focused at precisely the right moments. Most of all thank you for supporting me not only as your student but as a whole person through the ups and downs of this journey. The spirit of collaboration and mentorship you offered me throughout this time was truly invaluable, and gave me confidence to step into my career as a researcher and clinician. I genuinely always looked forward to our meetings together, and consider myself very fortunate to have had you in my corner these last seven years.

I am also immensely grateful to Col. (Retd) Rakesh Jetly, not only for making so much of this research possible, but also for providing me with experiences that opened my mind to the complexity of military experience, and to the impact that this research can truly have at all levels in the real world. Thank you for your guidance, for believing in my potential as a researcher and for welcoming me into your community. The opportunities you provided me have allowed me to engage with ideas and movements that are as exciting as they are worthwhile. Your mentorship means a lot to me, and I owe much of my growth during this process to you and your support.

Thank you to my committee members for providing important feedback on my proposed

work, and for encouraging me to think critically about the work I was taking on. Thank you to my lab and office mates for all of the stimulating conversations, the support and encouragement, and most importantly the hugs and the laughs that kept me going day in and day out.

To my awesome cohort – Enya, Nic, Audrey, Steph, and Najat, thank you for all of the practical and emotional support you provided me over the course of the program, including much needed group therapy sessions and sleepover parties. Over the years I truly felt secure in our shared commitment to supporting one another as a group, and for that I am so grateful.

Thank you to all of the participants who took the time to be part of this research. I am especially grateful to the Canadian Armed Forces Veterans and service members who took the time to sit down and share their experiences with me, allowing us all to learn from your hardships. A special thank you to the staff and clinicians at the Operational Stress Injury Clinic and the Operational Trauma and Stress Support Centre in Ottawa, for facilitating data collection and for engaging meaningfully in the subject with me, and sharing their valuable clinical experiences with me along the way.

Thank you to Evan Johnson for the life experiences that set me on this path. I will forever be grateful to you for revealing to me my vocation.

To Ben and Sylvie, thank you for seeing me for all that I am. For being my lifeline, my shepherds, my protectors and my best friends.

To the Lake Girls – Robyn, Sarina, Shannon, Sam, Andie – it is such a joy to continue growing up alongside you. Thank you for being a foundational presence and support through all the ups and downs that life has offered me on this journey. You are a part of me, for good.

To Kat, my cherished travel buddy, thank you for always being willing to meet me somewhere far off in the world when I needed to get away. Your encouragement and adventurous

spirit have never failed to help rejuvenate me when I needed it.

Most of all I want to thank my parents, Nora and Robert, and my sister Andrea for their unconditional love and unwavering support of me during my (at times, seemingly endless) academic journey. Without you I would not have been able to achieve this hefty goal. More importantly, I would not be the person that I am without you. I know that so much of the care and compassion I have to share in this profession is born out of your love for me. It has meant so much to me to have you close by during this process, and I am grateful that grad school brought me home to you.

To all my other wonderful friends and family – you know who you are and how much I love you. Thank you for being proud of me, for checking in on me, for keeping me balanced and for enriching my life with your presence.

DEDICATION

This dissertation is dedicated to all current and former members of the Canadian Armed Forces, their families and support systems, and all those impacted by all the awfulness that is war.

CONTRIBUTION OF AUTHORS

The studies of which this dissertation is comprised have been prepared as two manuscripts, which have each been subject to peer-review:

Study 1 (Chapter 2): Houle, SA, Vincent, C, Jetly, R, Ashbaugh, AR. (2021). Patterns of distress associated with exposure to potentially morally injurious events among Canadian Armed Forces Service Members and Veterans: A mixed-methods analysis. *Journal of Clinical Psychology, 1-26.* doi: 10.1002/jclp.23205

Study 2 (Chapter 4): Houle, SA & Ashbaugh, AR. (under review, *Stress and Health*). Predictors of negative moral appraisals and their association with symptoms of post-traumatic stress and depression in the context of COVID-19 related stressors.

Overall, I developed the topic of this dissertation, and was responsible for the design, methodology, and execution of these studies, under the close supervision and guidance of my supervisor, Dr. Andrea Ashbaugh. My dissertation committee, including Col. (Retd) Rakesh Jetly, MD, Dr. Cary Kogan and Dr. John Sylvestre, also contributed to these studies by providing their feedback on my initial research proposal.

For Study 1, under the guidance and with the support of Dr. Andrea Ashaugh, I was responsible for data collection and management, data analysis, as well as manuscript preparation and peer-review submission. Dr. Andrea Ashbaugh also provided support with data analysis for this study. I was further aided by a number individuals during this project, including collaborators Col. (Retd) Rakesh Jetly, who provided essential support and guidance in obtaining ethics and administrative approval to collect data in the Ottawa Canadian Armed Forces and Veteran clinics, as well as aided in the preparation and review of the final manuscript, and Colin Vincent, social worker and collaborator on this project, who provided support in data collection, interview

transcription, data analysis, and manuscript preparation and review. Volunteer research assistants in our laboratory, Cavan Pollard, Khaoula Louati, Hannah Zhang also supported the project by helping with transcription of study interviews and data entry.

For Study 2, Dr. Ashbaugh and I conceptualized the study together, and I was responsible for data collection, management, analysis, and manuscript preparation and submission. Sarah Crookhall, volunteer research assistant and undergraduate thesis student, supported management of the data as well as administration of compensation to participants. Kristin Beaudet, undergraduate thesis student, also helped with community recruitment for the study.

The two manuscripts submitted for publication are identical to those presented in this dissertation, including supplementary materials included at the end of chapter sections.

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CHAPTER 1: INTRODUCTION

The last decade has seen a surge of research on moral injury (MI), a term used to describe the psycho-spiritual distress and related impairment associated with exposure to events that severely transgress an individual's core moral beliefs and values (Litz et al., 2009). Shown to be associated with such deleterious outcomes as posttraumatic stress disorder (PTSD), depression, and suicidality, researchers have begun to explore the features of potentially morally injurious events (PMIEs) and how patterns of associated distress relate to existing taxonomies and treatment models of psychopathology. Still, our understanding of MI remains limited by the literature's focus on operational stress injuries and high-magnitude PMIEs (i.e., events that deeply disrupt an individuals' sense of right and wrong and shatter their view of their own and/or society's moral rules; Litz & Kerig, 2019).

The two studies conducted as part of my doctoral research program come together to comment on the relevance of MI to the clinical domain and provide important insights that extend our understanding of how morally relevant stressors impact psychological well-being. In Study 1, I explored patterns of distress related to MI in a sample of Canadian Armed Forces service members and Veterans through a mixed-methods investigation of the psychological consequences of PMIE exposure. Patterns of distress observed in other military samples were confirmed. This was an important contribution, given that no such distress profile had yet been investigated in a Canadian sample. In Study 2, the associations among PMIE exposure and distress observed in the occupational literature was put to the test in a sample recruited from the community. Results from this study revealed that even at a lower magnitude of moral stressor exposure, associations foundational to MI theory persist. The clinical and theoretical relevance of this collection of findings are the subject of this dissertation.

Moral Emotions and Mental Health

Morality as a construct encompasses a collection of beliefs and principles about how individuals should be treated (Graham et al., 2011). These beliefs are subject to religious, spiritual, societal, cultural, and individual evolution of right or wrong, the interpretation of which form the moral systems that make social life possible (Haidt & Kesebir, 2010). While there are innumerable circumstances that may prompt moral reactions in individuals, research suggests that there is a basic set of moral emotions that arise in response to morally relevant circumstances. Moral emotions (e.g., anger, guilt) differ from non-moral emotions (e.g., fear) in that they are concerned with the preservation of social relationships (Haidt, 2003), and thus can be placed into one of five categories: a) other-condemning emotions, b) self-condemning emotions, c) other-suffering emotions, d) other-praising emotions, and e) self-praising emotions (Haidt, 2003). Other-condemning emotions (e.g., anger, contempt, disgust) are those in which the individual appraises another to have an inferior sense of morality, for example when a person or group fails to live up to certain moral norms. In contrast, self-condemning emotions (e.g., shame, guilt) involve an appraisal of one's own actions as not meeting moral standards. Other-suffering emotions occur in response to the perceived mistreatment of others, and include emotions like empathy, compassion, and pity. Other-praising emotions, such as gratitude and awe, are prompted by situations in which an individual appraises another's behaviour as virtuous, or as achieving some perceived moral ideal. Finally, self-praising emotions (e.g., pride, self-importance) occur when an individual perceives that they have attained or satisfied some standard of personal moral worth.

Certain traumatic experiences engender a particular risk of prompting emotional reactions that fall into the moral domain, which can lead to pathological reactions in some individuals. For instance, research has consistently shown that interpersonal trauma (e.g., interpersonal violence,

sexual assault), events involving actions that are undoubtedly susceptible to perceived moral violations, are more commonly associated with reactions of guilt and shame compared to other trauma types (e.g., natural disasters, motor vehicle accidents; Badour et al., 2017; Beckham et al., 1998; Belik et al., 2009; DePrince et al., 2011; Luterek et al., 2011; Rytwinski et al., 2013). Similar reactions can also occur in instances of traumatic loss (e.g., "survivor's guilt"; Glover, 1984; Kubany, 1994; Litz et al., 2015) and in response to the perpetration of events perceived to be immoral (e.g., killing; Hendin & Haas, 1991; Maguen et al., 2009). Traditionally, these reactions were understood as being peripheral to or instigated by fear-based conceptualizations of posttraumatic stress (Stander et al., 2014), however emerging research rather suggests that the moral quality of a traumatic event and its concerns may be associated with particular pathological moral reactions (see below; Jordan et al., 2017; Litz et al., 2009, 2018; Nash et al., 2013; Stein et al., 2012).

In addition to traumatic stress, the experience of moral emotions is prominent in other psychological problems, most notably depression. Indeed, excessive guilt and feelings of unworthiness (i.e., shame) characterize self-based evaluations that are core to this pathology (American Psychiatric Association, 2013), and evidence suggests that other moral emotions such as self-directed contempt, disgust, and anger also play an important role (Cassiello-Robbins & Barlow, 2016; du Pont et al., 2018; Tangney et al., 1992; Zahn et al., 2015). With regards to guilt and shame, a meta-analysis conducted in 2011 by Kim and colleagues revealed important nuances relevant to the role of these emotions in depression. For instance, they found that overall shame was more strongly associated with depressive symptomatology than guilt, but that certain types of guilt (i.e., contextual-maladaptive guilt, referring to exaggerated sense of personal responsibility for uncontrollable events, and generalized guilt) demonstrated effect sizes similar to that observed

for overall shame ($r \sim .40$). Nuances in the experience of shame were also revealed, where shame stemming from the imagined negative perceptions of others was found to be more strongly related to depressive symptoms compared to shame derived from one's negative perceptions of self (Kim et al., 2011). Adding to these complexities, Zahn and colleagues (2015) showed that among the self-blaming emotions assessed, self-disgust/contempt was more frequent than guilt and shame in a sample of patients with history of major depressive disorder. Regarding anger, research has shown that more than 50% of patients with depression experience overt irritability and anger, and that a disposition towards anger is a comorbid factor in individuals struggling with depression and anxiety disorders, such as panic disorder and generalized anxiety disorder (Cassiello-Robbins & Barlow, 2016; Fava et al., 1990). In addition, research in the general population has demonstrated that a significant relationship exists between anger and major depressive disorder, even after controlling for demographic characteristics and co-morbid psychological disorders (Barrett et al., 2013).

Our Social-Moral Context

Seeing as the relationship between morality and society are inextricably linked, there are several important factors that warrant consideration with regards to the experience of moral emotions in different contexts. Given that the bulk of the research on MI to date has been conducted among military members and Veterans, I will begin the discussion here. The first consideration regarding the military is that modern war represents in large part the culmination of conflict between opposing ideologies, therefore the pretences under which an individual decides to engage in warfare may be inherently moral (Moore, 2011; Thompson et al., 2008). Second, the principles guiding military training and culture are morally based, which are internalized by military recruits to promote military professionalism and support a common purpose (Thompson et al., 2008).

Third, the actions and attitudes prescribed and encouraged in the war theatre differ substantially from those which support a civilian way of life (e.g., killing, suspicious attitudes toward nationals). Together, these issues represent a set of moral circumstances unique to the military, which have been hypothesized to exacerbate mental health problems upon returning from deployments (Brenner et al., 2015; Drescher & Foy, 2008; Farnsworth et al., 2014; Litz et al., 2009; Orazem et al., 2016; Thompson et al., 2008).

Indeed, the transition from military to civilian life has been shown to be an important stressor for Veterans, often associated with feelings of alienation and rejection, loss of identity, disillusionment about civilian life, and difficulty finding meaning in life, reactions that may serve to provoke or exacerbate depression, anxiety, and posttraumatic stress (Brenner et al., 2015; Brewin et al., 2011; Farnsworth et al., 2014; Orazem et al., 2016; Stander et al., 2014). While the mechanisms responsible for these reactions are certainly complex, moral emotions appear to be central to these problems (Farnsworth et al., 2014, 2017). For instance, perceived alienation may be prompted by perceived failure to have upheld the moral standards of civilian society, provoking self-condemnation and shame, while excessive anger may be prompted by a sense of disillusionment with the ways of the civilian world (i.e., condemnation of the collective "other").

Outside of the military context, increasing interest in the moral dimensions of occupational stress have similarly led to a burgeoning of research in other professional environments. One of the most common occupational contexts yet to be studied with regards to the impact of moral stressors is health care workers. This is especially true given the circumstances of the COVID-19 pandemic, which have put increased demands on workers, and has led to increased publicization of the mental health consequences associated with occupational stressors (“How Nurses Are Feeling,” 2021; Blais, 2020; Song et al., 2021). For example, stressors such as lack of

organizational support, being too overworked to properly care for patients, making medical mistakes, and poor access to resources (e.g., training, medicine, equipment) have been identified as experiences that prompt moral distress in previous research (Lamiani et al., 2017; Plouffe, Nazarov, et al., 2021), all of which have been exacerbated in the context of the pandemic. Indeed, comparable to the military context, health care workers are similarly bound by a specific ethos (i.e., "do no harm"), which provides a moral context for the profession within which stressors such as lack of access to resources adopt a moral imperative (Corley, 2002).

The same is true in numerous other occupational contexts, such as public safety, child protection, humanitarian work, and journalism, among others (Backholm & Idås, 2015; Dadouch & Lilly, 2021; Feinstein et al., 2018; Haight et al., 2017; Hunt, 2008; Lentz et al., 2021; Williamson et al., 2018, 2022). For example, a recent review by Lentz and colleagues (2021) demonstrated that public safety personnel regularly face situations that are at odds with the values instilled by their profession, which in turn prompt moral distress and other psychological consequences. Indeed, public safety personnel are often called upon to manage situations in which they are expected to simultaneously uphold certain objectives and values, which can sometimes be at odds with one another. For instance, police officers are expected to enforce the laws of their community while also maintaining social peace and community welfare, objectives that can lead to difficult moral dilemmas in situations such as being forced to remove homeless individuals from public spaces, or mitigating criminal activity being conducted by minors (Blumberg et al., 2018; Kleinig, 1993; Lentz et al., 2021). In addition, similar to the military, police officers are given specific authority to use lethal force when obliged, an event that has been shown to be potentially morally injurious (Komarovskaya et al., 2011). Both journalists and humanitarian workers are also forced to manage various morally ambiguous situations and personal dilemmas. Examples of such

experiences include difficulties respecting local customs while adhering to one's own personal values, exposure to extreme human suffering, and betrayal by one's organization (Dadouch & Lilly, 2021; Feinstein et al., 2018; Hunt, 2008; Williamson et al., 2018). Similar issues are also reported by child protection workers (Haight et al., 2017). These similarities across professions suggest that occupational contexts for which specific moralized values (e.g., helping, protecting) are inherent may pose a risk to psycho-spiritual well-being.

Unlike the occupational context where specific values are indoctrinated and expressed in the context of commonly exercised and agreed upon rules and regulations, the moral rules by which larger society is bound (e.g., do not harm others) are much more implicit, and thus unlikely to be the subject of preoccupation for regular citizens engaging in their daily activities. Indeed, the moral context of Western, industrialized societies is poised towards the expression and tolerance of individual freedoms, such that individual moral choices are rarely the subject of scrutiny by the group at large. This may be one reason for which specific moral stressors and their impact have not been the focus of research attention in the general population. The COVID-19 pandemic, however, has provided a unique and highly publicized moral frame against which people are being asked to make everyday decisions, allowing for more widespread moralizing of individual choices. This context therefore provides a novel opportunity to examine the impact of specific moral stressors in the general population. For example, public health messaging related to COVID-19 has tended to use highly moral language (e.g., "do the right thing," "it is our duty," "protect your loved ones") in its efforts to mitigate the impact of the virus (Tam, 2020; Trudeau, 2020; Maclean's, 2020; Guterres, 2020). Further, media attention on the politicization of vaccines and mask mandates, stories covering the consequences of rule-breaking (e.g., "super-spreader events"), and those covering the suffering of those most affected by the pandemic are likely to have

increased regular citizens' exposure to moral stress (Boffey, 2020; Klass, 2022; Stevenson & Shingler, 2020). The pandemic has also forced those in positions of power to make decisions that may cause harm to others, such as economic hardship and illness (e.g., shutting down businesses, sending employees to workplaces where they risk virus exposure). Further, mutations in the virus and the rapid dissemination of new evidence on the efficacy of different public health measures has meant that regulations have changed regularly, adding to the moral ambiguity of these decisions and challenges. The impacts of this are already being seen, particularly in the health care context, where factors such as perceiving one's work environment as unethical and lack of adequate resourcing have been shown to predict moral distress and burnout, among other outcomes (Plouffe, Nazarov, et al., 2021). In sum, the socio-moral context in which an individual performs certain activities or experiences certain events is likely to have an important bearing on the aspects of those events and their sequelae that may become impactful to the individual.

The Nature of PMIEs

Moral stressors likely exist along a continuum, from situations that challenge one's moral beliefs (e.g., being lied to by a trusted person) to events that deeply disrupt an individuals' sense of right and wrong, and shatter their understanding of their own and/or society's moral rules (e.g., exposure to the threat of genocide; Litz & Kerig, 2019). According to a recent model put forth by Litz & Kerig (2019), events that may provoke moral distress likely vary along three dimensions: event frequency, population prevalence, and degree of psycho-spiritual harm and impairment. At one end of the spectrum lie moral challenges – low-frequency, high prevalence events that are not likely to be self-relevant, and cause a normative level of "moral frustration" (e.g., worries about facing undesired outcomes associated with a political election). Moral stressors, then, are events that are self-referential (e.g., "when one is a moral agent or is directly impacted by other's

transgressive behaviors"), and which are likely to prompt moral distress (e.g., some guilt or anger, loss of sleep, intrusive thoughts in response to a partner's infidelity) but may not lead to significant impairment. PMIEs, therefore, are very low frequency, high-impact events that substantially alter the individual's sense of identity and prompt severe distress, potentially leading to chronic emotional problems and dysfunction (Litz & Kerig, 2019). To date, the bulk of the existing research on PMIEs has been conducted in the context of high-stakes occupational stressors. As such the following discussion focuses on such experiences in the military context, foundational as they are to existing theories of MI.

Though military personnel undergo extensive training for their missions, including ethical combat training, the ambiguity and complexity of combat can blur moral lines, requiring difficult decisions to be made and, in extreme circumstances, even prompt soldiers to engage in immoral behaviour. In their qualitative analysis of how PMIEs occur in a war zone, Currier and colleagues (2015) identified 25 themes relating to organizational, environmental, psychological, cultural and relational circumstances which provoke PMIEs. Several of these circumstances are described here to illustrate the potential consequences of PMIEs. For instance, one participant in the above study discusses the difficulty he faced in determining whether or not to abide by the rules of engagement (i.e., guidelines that delineate the circumstances and limitations under which a military will initiate and/or continue combat engagement; United States Department of Defense, 2015), which in this case he perceived to be too restrictive and put lives in danger:

> I always knew what the right thing was but the right thing isn't what's going to keep everyone alive. You know what's wrong but you also know it's wrong to sit there and let your brother die. So, you just try not to pick the worst of the evils in the sense of my own moral values or code as far as what the Marine Corps taught me to believe in and protecting those who cannot protect themselves (Currier et al., 2015).

Other organizational circumstances that may prompt PMIEs are orders to act on inaccurate

intelligence, and lack of training or preparation for negotiating war-zone decisions, among others (Currier et al., 2015). In this study, the most commonly identified themes relating to how PMIEs occur were psychological factors, including a forced sense of hopelessness and helplessness, anger and desire for retribution, perceived changes in identity and/or personal morality, as well as grief over combat loss. One soldier described his perceived moral transition while on deployment:

> Part of it was probably the moral aspects of things . . . and then feeling that I betrayed all those values by hurting people and embracing the other part of anger and hate . . . I went over and became the enemy. I felt like I became the enemy and what I went there for was to take out the enemy. We are doing our job at one point . . . and over time and seeing things . . . everything starts being clouded and you start becoming somebody different. Sometimes you just do not know it because it's just so easy to do it. I was just wondering more of why I did it. What caused me to do it, to get this far, when I always thought that I was mentally stronger than other people? . . . especially when it came to my morals and my upbringing . . . I do not know . . . things change (Currier et al., 2015).

While research on PMIEs in the Canadian context remains sparse, one major case in Canada that has gained much deserved attention in the media and in the military mental health community is that of retired Canadian Armed Forces (CAF) Lieutenant-General Roméo Dallaire, who served from 1964 to 2000 and has received countless commendations for his efforts during his service, and later as an advocate for human rights (Bonikowsky, 2015). In his memoirs, *Shake Hands with the Devil: The Failure of Humanity in Rwanda* (2004) and *Waiting for First Light: My Ongoing Battle with PTSD* (2016) Dallaire discusses his experience of several PMIEs, including his perceived betrayal by senior officials to provide him with resources to protect and care for the troops and communities in Rwanda he was elected to protect, difficult decisions he was forced to make, such as leaving wounded children to die for the sake of following orders, and the witnessing of atrocities, such as the aftermath of massacres in Rwandan villages. Together, the above examples illustrate the moral complexity of war-zone experiences, and how, over time, the effects of these events and experiences serve to engender the inner conflict that has become central to the

MI construct (see below).

Research and theory suggest that PMIEs can be organized into two broad categories: those that violate one's own sense of personal responsibility, and those that violate expectations and beliefs about the responsibility of others (Atuel et al., 2021; Bryan et al., 2016; Litz et al., 2018; Nash et al., 2013; Stein et al., 2012). Events involving personal responsibility, or "self-based transgressions" are those in which the individual either acts in a way that is appraised to be immoral, or fails to act in such a way as to preserve their sense of moral integrity (e.g., fails to intervene when witnessing abuse). Events involving the personal responsibility of others ("other-based transgressions") are those in which the individual bears witness to the immoral acts of others, or appraises that they or others have been victimized (betrayed) by the actions of others. The distinction between these types of PMIEs has important implications if we consider the nature of self-condemning and other-condemning emotions, and the related patterns of distress that these may engender within the individual (reviewed below).

Research on the nature of PMIEs remain in its infancy, and while measures of PMIE exposure have been developed (e.g., Currier et al., 2015; Nash et al., 2013), they are widely criticized for failing to distinguish exposure from outcome – that is, event occurrence, moral appraisal of the event, and emotional outcomes are confounded (Koenig et al., 2019). Others have attempted to address this issue by having participants report exposure to transgressive acts in such a way as to omit explicit moral appraisals of the events (e.g., "I made a mistake in a warzone that led to injury or death;" Frazier et al., 2017; Hansen et al., 2021; Lancaster, 2018; Nazarov et al., 2018). Another strategy is the coding of event narratives obtained in clinical settings (Litz et al., 2018), however this approach risks being biased by researchers' ascription of moral appraisals to the events. Nevertheless, preliminary prevalence studies have demonstrated that PMIEs may

unfortunately be more pervasive than the public might like to believe. Recent studies among US Veterans show that nearly 42% report at least moderate exposure to some PMIE (Wisco et al., 2017), with approximately 18-25% having witnessed or been affected by the moral transgressions by others, and 7-18% reporting having perpetrated some transgression (Litz et al., 2018; Stein et al., 2012; Wisco et al., 2017). Interestingly, the figures reported by Wisco and colleagues (2017) report prevalence among a nationally representative survey of Veterans, and do not differ substantially from studies among treatment-seeking Veterans (Litz et al., 2018; Stein et al., 2012). In Canada, studies using nationally representative data of CAF Veterans having deployed to Afghanistan between 2001 and 2013 report that 58-65% have been exposed to at least one PMIE. In the context of policing, existing data suggests that rates of exposure to specific self-transgressive events (i.e., killing or seriously injuring someone in the line of duty) is similar to the above figures, occurring in approximately 10-25% of officers (Komarovskaya et al., 2011; Weiss et al., 2010).

To date, most theorists agree that the above qualities of PMIEs (most notably the self-other domain of impact) warrant consideration in our understanding of MI's etiology. However the complexities with regard to measuring PMIE exposure, as well as understanding the features of events that may distinguish PMIEs and lower-level moral stressors (Litz & Kerig, 2019), has yet to be elucidated.

Models of MI

Military personnel remain one of the most commonly researched populations with regards to psychotraumatology, and one of the largest groups of mental health service users in Canada and abroad (McLay et al., 2005; Sareen et al., 2016; Weeks et al., 2017). Historically, spiritual struggles and difficulty finding meaning in war experiences have been common themes throughout military mental health literature, however past focus on fear-based conceptualizations of PTSD as

a war-related illness in mainstream discourse has tended to overshadow the more existential inner conflicts afflicting those who serve. This has changed substantially of late, as growing recognition of the impact of such afflictions has become a dominant area of research in military mental health.

This movement can be traced back to 1994, when Johnathan Shay, an American psychiatrist, first coined the term “moral injury” in his book entitled *Achilles in Vietnam Combat Trauma and the Undoing of Character,* in which he drew parallels from Homer’s epic war poem *The Iliad* to the experience of American soldiers returning from the Vietnam war, with whom he worked closely. He defined MI as a betrayal of what is right from a person of authority (i.e., a military leader), that occurs in a high-stakes situation (Shay, 2014). Shay, taking notice of the lacuna in the American Psychiatric Association’s (APA) description of PTSD at the time, highlighted the fact that the realities of war have the capacity to change an individual’s character in important ways, a consequence of trauma yet to be formally recognized by the APA (Shay, 2014). He notes, for example, that while scholars such as Judith Herman (2015) had long been advocating for recognition for how traumatic events involving betrayal prompt distress relevant to the realms of character, identity, and relationships (i.e., domains of impact relevant to the construct of complex posttraumatic stress disorder (C-PTSD), a diagnosis just recently added to our psychiatric taxonomy; World Health Organization, 2019), that the fear-based conceptualizations of war-related trauma continued to dominate the discourse around diagnosis and treatment of soldiers (Shay, 2014).

Using Shay’s work as a starting point, Atuel and colleagues (2021) have elaborated on this perspective, and draw a distinction between the character domain of impact that PMIEs can exert on the soldier, and the clinical domain of experience. Atuel and colleagues (2021) define MI as the consequences of an event in which moral failure leads to an experience of suffering that

threatens one's character and identity. Character here refers to "a unique virtue or set of virtues that the person possesses, exhibits, or demonstrates" (Atuel et al., 2021), and is related to identity such that virtues underlie character, and character forms the basis of identity. Within this domain, two major questions underlie suffering in the aftermath of a PMIE: "What have I done/What was done to me?" and "Who am I in the aftermath of this moral failure experience or in the midst of moral suffering?" When the answers (or struggle to answer) these questions reflect a less virtuous state of character, and therefore a significant change in identity, a moral injury can be said to occur (Atuel et al., 2021). The distress engendered by this conflict pertain to the negative emotions that arise in response to this identity disturbance (e.g., anger, shame, regret, guilt), which in themselves signal that the underlying virtues of the individual have been somehow threatened. In essence, according to this perspective, the conflict between one's "real self" and one's "undesired self" lays at the root of MI. With regards to the *impact* of this injury, then, Atuel and colleagues maintain that it is this conflict that can be understood to prompt the patterns of behaviours, cognitions and emotions that can be characterized as pathological and thus relevant to the clinical domain.

Literature pertaining to the clinical domain of MI has received substantial attention of late, and there is growing consensus that the consequences of PMIEs deserve special attention as a target for mental health intervention (Farnsworth et al., 2017; Jinkerson, 2016; Litz et al., 2009; Nieuwsma et al., 2015; Williamson, Murphy, Phelps, et al., 2021). A seminal paper by Litz and colleagues (2009) was the first to accentuate this position and propose a clinical model of MI. Drawing parallels with the social-cognitive theory of PTSD, which purports that traumatic events disrupt self-relevant schemas pertinent to such themes as safety, trust, esteem, and control (Foa et al., 1999; Janoff-Bulman, 1989; McCann & Pearlman, 1991; Herman, 2015; Monson et al., 2006), Litz and colleagues (2009) suggest that an act of transgression disrupts previously held beliefs and

expectations of right and wrong and personal goodness. In response to this disruption, dissonance and inner conflict ensue, eliciting emotional distress (i.e., guilt and/or shame). The model further posits that the attributions one makes about the event have a significant impact on outcomes, suggesting that attributions that are global (i.e., not dependent on context), internal (i.e., dispositional), and stable (i.e., lasting, for example the sense of being "tainted" by the experience), exacerbate the emotional consequences of the event, leading to withdrawal based in the expectation of being judged. In addition to withdrawal, intrusive thoughts, re-experiencing, avoidance, numbing, and demoralization are also hypothesized to result in response to the individuals' incapacity to resolve the moral conflict at the centre of their distress. Importantly, Litz et al. (2009) maintain that while several features of the above model overlap with symptoms of PTSD, MI as an emerging construct differs in a number of important ways. Importantly, for instance, criteria for PTSD necessitate that the individual be exposed to an event that threatens the physical integrity of an individual (whether oneself or another; American Psychiatric Association, 2013). While PMIEs may include a life-threat component (e.g., killing in wartime), MI is purported to occur in response to events that do not threaten physical integrity (e.g., failing to provide aid during exposure to extreme poverty). The emotions at the core of conceptualizations of PTSD and MI are also different, as models of PTSD focus extensively on a fear conditioning, while MI (according to Litz et al.'s model) centers around the experiences of guilt and shame. Further, hyperarousal, a key symptom cluster of PTSD, is largely understood to occur in response disruptions to the individual's physiological stress response system in the face of life-threating trauma (e.g., Friedman et al., 2014; Nash, 2019). Again, while life threat may be a feature of a PMIE, it is not a prerequisite for conceptualizing MI distress, therefore calling into question the utility of considering PTSD akin to MI. Similarly, while C-PTSD as elaborated in the International

Classification of Diseases (ICD-11; World Health Organization, 2019) is a diagnostic construct that accounts for disruptions in identity and pervasive feelings of guilt and shame, the fear-based features of PTSD are still a requirement for this diagnosis, obscuring its applicability to MI. Lastly, while symptoms such as re-experiencing, avoidance, and intrusions may occur in response to a PMIE, the function of these symptoms can be understood to be qualitatively different than in PTSD (e.g., avoidance of threat in PTSD vs. avoidance of social judgment), therefore calling into question existing models of PTSD that hold a fear-based model of conceptualization (Farnsworth et al., 2017; Foa & Kozak, 1986; Gray et al., 2012, 2017). Still, as stated by Litz & Kerig (2019), "[w]ith respect to the clinical context, we should not assume without evidence that MI, as a mental and behavioral health outcome, has incremental explanatory validity and clinical utility beyond concepts more widely recognized, such as PTSD" (and by extension C-PTSD). While this model has prompted a wave of important research into the psychological *impact* of MI, many assumptions within this model have yet to be tested empirically. For instance, Litz et al., (2009) posit that proneness towards experiencing moral emotions, such as guilt and shame, may create a vulnerability for MI. They also suggest that anxiety sensitivity (e.g., catastrophic beliefs about bodily sensations), is a factor more likely to predispose an individual towards fear-based outcomes, such as PTSD and anxiety, as opposed to MI. Thus, much remains unknown about factors that may place an individual at risk of the clinical consequences described.

Another perspective that warrants attention here is that which focuses on the spiritual impact of PMIEs. The focus of MI in this context centers around the capacity for PMIEs to prompt disruptions in core spiritual beliefs, such as beliefs about the ultimate order of the universe or the role/relationship of transcendent beings to human life, as well as disruptions in processes underlying these beliefs, such as meaning-making. Theorists of MI taking a spiritual lens thus

describe the experience as a “wound in the soul” (Brock & Lettini, 2012) or a “fragmentation of a teleological whole” (Kinghorn, 2012), recognizing that spiritual suffering is representative of in-tact moral conscience and affects all aspects of one’s experience of being. In contrast to the notion that spiritual suffering constitutes a “dissonance” to be resolved, some theologians view MI as an opportunity for the individual to reify their spirituality (Antal & Winings, 2015; Kinghorn, 2012). Further, this perspective holds central to its premise the notion that a consideration not only of the moral nature of PMIEs, but to the place of war in our moral world is itself foundational to moral healing (i.e., healing happens through "reconciliation to God and community;" Antal & Winings, 2015; Kinghorn, 2012). Given the scope of this perspective, it is not surprising that the spiritual and psychological/clinical implications of war have largely been considered separately until recently. Indeed, while the notion that trauma in particular impacts one’s spirituality is certainly not new (e.g., Drescher & Foy, 2008; Shay, 2014), such issues have largely been considered peripheral to the “core” effects of traumatic experiences (i.e., fear conditioning arising from physical threat). The discourse around MI has changed this significantly, bringing the importance of spiritual suffering to the fore as a collection of experiences worthy of clinical attention and care. Understanding the spiritual perspective in MI is important because it highlights the longstanding role of spiritual issues inherit in wartime experiences (Drescher et al., 2007; Kinghorn, 2012; Lettini, 2013), and the importance of an interdisciplinary approach to understanding and addressing MI.

At this point, the above models of MI remain grounded in the military experience. While these theories have been applied to other occupational contexts with some merit (see below), the extent to which they can appropriately be applied to the general population remains unexplored. Further, as noted above, factors that have been theorized to create individual vulnerabilities

towards experiencing MI have yet to be empirically examined. Importantly, what these models have in common is the understanding that the moral pain in response to PMIEs constitutes a normal human reaction, and that only when the experience fails to be integrated do reactions tread into the clinical domain. This is a notion foundational to our understanding of stressor-related problems (American Psychiatric Association, 2013).

The Clinical Relevance of MI

Of primary interest to the clinical domain is the collection of emotions, behaviours, thoughts and patterns that have come to define MI, and that can be seen to influence individual distress and impairment. Early in the conceptualization of MI (recent as that is), theorists – through literature reviews, clinical expert testimony, and retrospective data analysis – purported that MI could be characterized by intense feelings of shame and guilt, identity dysregulation and persistent cognitive dissonance or inner conflict associated with the perceived or perpetrated transgression of moral beliefs (Drescher et al., 2011; Drescher & Foy, 2008; Litz et al., 2009; Shay, 2014). Additional proposed symptoms included demoralization, re-experiencing, spiritual and/or existential turmoil, social withdrawal, hostility, dysphoria, and distrust, among others (Beckham et al., 1998; Drescher & Foy, 2008; Nieuwsma et al., 2015; Shay, 2009, 2014; Thompson, 2015; Worthington & Langberg, 2012).

Research has advanced quickly to test these assumptions, and studies have largely supported initial predictions. Again, given the nature of military service and operations, the bulk of the research supporting the construct validity of MI has been conducted in this population. For instance, both qualitative and quantitative investigations of the emotional consequences of military related PMIE exposure have found associations with guilt, shame, anger, withdrawal, spiritual struggles, difficulties with meaning-making, inability to forgive, re-experiencing, hostility and

distrust (Battles et al., 2019; Bryan et al., 2018; Corona et al., 2019; Currier, Foster, et al., 2019; Currier, Holland, Drescher, et al., 2015; Currier, Holland, & Malott, 2015; Dennis et al., 2017; Frazier et al., 2017; Held, Klassen, Hall, et al., 2018; Litz et al., 2018; Nash et al., 2013; Plouffe, Easterbrook, et al., 2021; Purcell et al., 2016; Stein et al., 2012; Sullivan & Starnino, 2019; Williamson et al., 2020; Yeterian et al., 2019). Further, as consensus has grown regarding the core features of MI, measures have been developed to specifically assess this collection of psychological consequences in response to PMIEs (Currier et al., 2018; Koenig et al., 2018). Psychometric studies thus far appear to support the validity of the MI construct. For example, Currier and colleagues (2018) developed the Expressions of Moral Injury Scale-Military Version, the most rigorously constructed and validated measure of MI-related distress to date. The scale includes items reflecting experiences of shame, guilt, anger, disgust, low self-worth and self-punishment, withdrawal, loss of trust in self and others, aggression and loss of faith. Analyses supported the associations among these features of MI as representative of a definable construct, the identification of two subscales reflecting self- and other-directed expressions of MI.

Indeed, the distinction between self- and other-based transgressions in their ability to prompt different psychological sequelae has been supported by a number of studies. For instance, Litz and colleagues (2018) coded trauma narratives from treatment-seeking, active duty military members from the United States into a number of categories, including MI-self and MI-other. They found that, compared to participants' whose primary traumas were characterized by a life-threatening event, those who endorsed MI-self has significantly higher scores on measures of guilt-related cognitions (e.g., hindsight bias), and those who endorsed MI-other had significantly higher scores of betrayal (Litz et al., 2018). Studies have also demonstrated specific associations between self-based PMIEs and emotional reactions of guilt and shame, whereas reactions of anger have

been shown to be associated with both self- and other-based PMIEs in the military context (Bryan et al., 2016; Dennis et al., 2017; Jordan et al., 2017; Maguen et al., 2010; Stein et al., 2012; Williams & Berenbaum, 2019). Severity of clinical problems in the military context has also been shown to differ based on PMIE type, with self-based transgressions showing stronger associations with PTSD and suicidality (Currier, McDermott, et al., 2019; Maguen et al., 2012, 2013, 2022). In one study of refugees, other-based PMIE exposure was found to be more strongly associated with PTSD symptom severity (Hoffman et al., 2018), suggesting further nuances with regards to PMIE type and impact based on context. In this regard, it is worth noting that the majority of the research to date has been conducted in the United States. This limits the generalizability of findings in an important way, given that different nations and military organizations may teach and uphold different values and mission objectives (Yakovleff, 2007). For example, Canada's military identity has historically been centered around the value of peacekeeping and humanitarianism, while the United States tends to emphasize the Warrior identity in its military and pursuits of defending against enemies of the nation (Fitzsimmons et al., 2014; Yakovleff, 2007). Such differences may indeed impact individuals' vulnerability towards experiencing PMIEs and their sequelae, however this question has yet to be addressed in the literature.

Research has also demonstrated with remarkable reliability that PMIE exposure as well as the distress characteristic of MI have important associations with serious mental health outcomes, most notably depression, PTSD, anxiety, substance use problems, and suicidality (Battles et al., 2019; Bryan et al., 2018; Currier et al., 2014, 2018; Currier, Foster, et al., 2019; Dennis et al., 2017; Griffin et al., 2019; Hall et al., 2021; Koenig et al., 2018; Nazarov et al., 2018; Nieuwsma et al., 2020; Sareen et al., 2007; Williamson et al., 2018; Wisco et al., 2017). These associations appear to hold outside of the military context, with similar findings demonstrated in samples of

health care workers, public safety personnel, journalists, teachers, and refugees (Currier, Holland, Rojas-Flores, et al., 2015; Dadouch & Lilly, 2021; Hall et al., 2021; Hoffman et al., 2018; Mantri et al., 2021; Plouffe, Nazarov, et al., 2021; Roth et al., 2022). Importantly, studies have shown that the distress associated with PMIE exposure is largely maintained after considering exposure to life threat (Beckham et al., 1998; Litz et al., 2018; Marx et al., 2010; Wisco et al., 2017). For instance, studies among Vietnam-era Veterans in the United States have shown that exposure to and direct involvement in atrocities (i.e., witnessing mass graves) was associated with PTSD symptom severity after controlling for traditional combat exposure (i.e., being under enemy fire, going on patrols; Beckham et al., 1998; Currier et al., 2014). Further, guilt and symptoms of PTSD appear to be important mediators in the association among PMIE exposure and outcomes like suicidality, depression, and substance use problems (Beckham et al., 1998; Currier et al., 2014; Dennis et al., 2017; Marx et al., 2010). Similar findings were observed in a sample of refugees in Australia, whereby positive associations between MI and PTSD were observed after accounting for direct trauma exposure (Hoffman et al., 2018). Disaggregating the impact of morally disturbing from traumatic events is certainly challenging, however what these findings appear to suggest is that there is something unique about the morally disturbing nature of events that contributes to psychopathology.

To date, the outcome most examined with regards to the impact of PMIEs is PTSD. This is largely because the underlying assumption in MI theory is that, like PTSD, it is a stressor-related problem directly attributable to an event (or events) of a certain quality. Given this theoretical link, studies have been conducted which attempt to address the question of whether the profile of distress prompted by PMIEs is adequately captured by the PTSD syndrome. When investigating specific features (i.e., symptom clusters) of PTSD, studies have shown that PMIE exposure is

associated most consistently with negative emotions, cognitions and beliefs related to self and the world after the event (Badour et al., 2017; Beckham et al., 1998; Dadouch & Lilly, 2021; Litz et al., 2018; Smigelsky et al., 2019; Stein et al., 2012). Older findings among military Veterans in the United States (Fontana et al., 1992) suggested that traumatic events involving personal responsibility were associated with less re-experiencing (Cluster B) and hyperarousal (Cluster E) symptoms compared to traumatic events that were not defined by this feature. More recent findings, however, appear mixed. For instance, a positive association between PMIE exposure and intrusive symptoms has been demonstrated in some studies (Beckham et al., 1998; Litz et al., 2018) but not others (Hoffman et al., 2018; King et al., 2020). The same is true for hyperarousal symptoms (Hoffman et al., 2018; King et al., 2020; Litz et al., 2018). One potential explanation for these findings is that it may be that specific symptoms captured by these clusters (e.g., nightmares (Cluster B), angry outbursts (Cluster E)) are more associated with MI than others (e.g., flashbacks (Cluster B), exaggerated startle response (Cluster E)). Indeed, a study conducted by Bryan and colleagues (2018) used exploratory structural equation modeling to investigate how specific symptoms of PTSD and features characteristic of MI cluster together. They observed that distinct profiles representing "PTSD" and "MI" could be identified, with the former constituted of exaggerated startle, memory loss, and flashbacks, and the latter constituted of feelings of sorrow, guilt, shame, and alienation. Thus, while no clear picture has yet emerged as to whether PTSD and MI can be considered distinct syndromes, it does appear that features of MI are unique enough in their association with psychopathology to warrant targeted clinical attention.

Implications of Understanding MI: Nosology, Treatment, and Policy

The implications of understanding how MI fits within our conceptualization of stress-related psychological problems are widespread. First, as noted above, it does not appear that PTSD

as a diagnostic entity adequately captures the profile of distress characteristic of MI, though features overlap substantially. This overlap might in part explain a longstanding finding in the military mental health literature – high comorbidity between PTSD and depression (MacNair, 2002; Maguen et al., 2009, 2010, 2013; Sareen et al., 2007; Yehuda et al., 1992). Indeed, a recent meta-analysis of 57 studies (N = 6,670) demonstrated that 52% of individuals with PTSD have comorbid depression, and that this rate was significantly higher in military samples compared to civilian samples (Rytwinski et al., 2013). Further, these disorders tend to co-occur over the lifespan (Elhai et al., 2008), and the severity of both disorders tend to mirror one another (Armour et al., 2015), suggesting that similar mechanisms may play a role in the etiology and maintenance of both disorders when they do co-occur (Flory & Yehuda, 2015; O'Donnell et al., 2004). In addition, Veterans with comorbid PTSD and MDD experience more anger than those who report clinically significant symptoms of just one of these disorders (Gonzalez et al., 2016), and comorbid PTSD and MDD are associated with elevated risk of suicide in military personnel (Campbell et al., 2007; Ramsawh et al., 2014), with cognitive-affective symptoms of MDD and emotional numbing symptoms of PTSD shown to be independently associated with suicidality in Veterans (Guerra & Calhoun, 2011). Given that characteristics of MI seem to overlap with those of both PTSD and MDD (e.g., dysphoria, guilt, worthlessness, numbing, and avoidance/withdrawal, as reviewed above; American Psychiatric Association, 2013), a better understanding of MI could lead to important insight as to the mechanisms associated with the comorbidity and chronicity of PTSD and depression, in military samples especially. For instance, while features common to both PTSD and MDD certainly do not encompass *all* proposed features characteristic of MI (e.g., spiritual conflict), it may be that in cases where a traumatic events (i.e., criterion A for PTSD, American Psychiatric Association, 2013) also entail a moral violation, that MI may make up an important

yet overlooked feature of the PTSD/MDD presentation. Given how common both PMIE exposure and PTSD/MDD comorbidity is in the military context, this possibility warrants investigation.

Indeed, treatment trials that have targeted chronic PTSD find that effect sizes are consistently smaller among Veterans than among civilian treatment groups (Bradley et al., 2005; Monson et al., 2006; Ready et al., 2008; Schnurr et al., 2007). With respect to treating comorbid conditions, limited resources are available to guide clinicians in addressing the particular clinical presentation associated with PTSD/depression comorbidity. This is a significant gap in the clinical literature, given that individuals with comorbid PTSD and depression have been shown to have poorer prognosis, and have higher rates of treatment dropout compared to those diagnosed with only one of these disorders (Campbell et al., 2007; Green et al., 2006; Nixon & Nearmy, 2011). Further, while some PTSD treatments have been shown to reduce symptoms of depression, the mechanisms by which this occurs are unclear. For example, one study of female sexual assault survivors found that trauma-related guilt was reduced post-treatment, however that neither treatment condition (cognitive processing therapy vs. prolonged exposure) nor diagnostic status (PTSD vs. comorbid PTSD/MDD) had an influence on post-treatment guilt scores (Nishith et al., 2005). Of note, trauma type was not examined in this study, an important caveat given that certain types of sexual assault (e.g., betrayal by a known person vs. assault by a stranger) can lead to different outcomes (Belik et al., 2009; Kelley et al., 2012; Wanklyn et al., 2016).

In the military context in particular, Gray and colleagues (2012) suggest that evidence-based treatments for trauma, such as prolonged exposure and cognitive processing therapy, do not adequately consider the unique stressors faced by combat Veterans, such as multiple traumatic losses and PMIEs. Litz and colleagues (2015) maintain that these therapies are ill equipped to treat the more complex and morally salient military experiences faced by many soldiers and Veterans,

and fail to account for important aspects of the military ethos. For example, cognitive therapies for trauma purports that clients' thoughts about the traumatic event or potential dangers in the environment are erroneous and exaggerated, and the therapy attempts to modify these beliefs to quell symptoms (Ehlers & Clark, 2000; Resick et al., 2014). In the case of a PMIE, however, symptoms of guilt and shame may be brought about by thoughts such as "I should be punished because I wrongfully killed an innocent person," which may closely reflect the reality of the event (e.g., the individual should face a human rights trial but escaped persecution) and thus be less amenable to change (Gray et al., 2012; Litz et al., 2015; Steenkamp et al., 2013). With regards to prolonged exposure, research shows that treatment is less effective in those with comorbid conditions − a clinical presentation that represents a rule rather than an exception in military personnel (Foa et al., 2007; Gros et al., 2010, 2012). Further, in those who have experienced a PMIE, exposure to the traumatic memory may serve to exacerbate cognitive dissonance and feelings of shame and guilt, as PMIEs no longer fall within the purview of fear-conditioning models of trauma (i.e., habituation to the trauma memory may not lead to a decrease in symptoms of distress). These criticisms of existing therapies have, however, yet to be tested empirically, and many theorists and clinical experts have provided suggestions supported by case reports regarding how clinicians can account for MI when using existing therapies (Held, Klassen, Brennan, et al., 2018; Koenig et al., 2017; Murray & Ehlers, 2021; Pearce et al., 2018). Still, debate on the issue of whether distress akin to MI can be properly addressed with existing treatment approaches remains contentious (e.g., Antal et al., 2019; Evans et al., 2021; Gray et al., 2017; Murray & Ehlers, 2021; Rauch et al., 2013; Steenkamp et al., 2013), and future research is surely needed. Where there appears to be some consensus, however, is in the notion that specific features of MI, such as loss of meaning, connection to others, as well as guilt, shame, and anger, are worthy of targeted

intervention in the context of PMIE exposure. To this aim, approaches proposed thus far have focused on providing an understanding of moral emotions as representative of a healthy conscience, behavioural engagement with reparative, interpersonal, and values-based actions, as well as strategies incorporating mindfulness and compassion-focused interventions (Capone et al., 2021; Cenkner et al., 2021; Evans et al., 2021; Farnsworth et al., 2017; Litz & Carney, 2018; Litz et al., 2015; Maguen et al., 2010; Nieuwsma et al., 2015; Pernicano et al., 2022). While these approaches are theoretically well-supported they remain under-researched, however, and there remains no rigorous evidence base focused on interventions specific to MI.

Another important area of impact relevant to MI is with regards to military mental health care policy. For instance, as per current Veterans' Affairs Canada (VAC) policy, Veterans must have a diagnosed service-related medical condition to be eligible for disability and treatment benefits (Canada, 2014b). According to VAC, 52% of CAF Veterans receiving benefits due to conditions prompted by deployment to Afghanistan are receiving benefits specifically for PTSD (Canada, 2014a). As mentioned, this diagnosis may not adequately account for MI, therefore it is possible that CAF soldiers and Veterans who require mental health support for this condition are not receiving proper care. The implications of this are serious, as PMIE exposure is associated with greater severity of psychopathology and suicidality (see above). Greater understanding and legitimacy of MI and its clinical impacts may prompt VAC policy makers to examine the disability associated with MI, and consider providing benefits and services to those suffering from this collection of problems. Another important area of policy impact is suicide prevention – a major public health priority for the Canadian Armed Forces (National Defence, 2017). The 2017 Veteran Suicide Mortality Study shows that females and young males in the CAF have a 81% and 242% higher risk of dying by suicide, respectively, compared to the general population (Simkus et al.,

2017). As noted, PMIE exposure has been empirically linked to suicidality in military populations and rates of suicidality in the CAF have increased significantly since the missions to Afghanistan (Sareen et al., 2016), where PMIEs may have been more common than previous conflicts. A better understanding of the associations between MI and clinical outcomes will do much to support existing policies aimed at understanding and mitigating risks associated with suicidality. For instance, a better understanding of the links among PMIE exposure, MI and suicidality in the CAF would serve to refine existing programs germane to this effort. One such example is the Road to Mental Readiness program (Government of Canada, 2013), which aims to build resilience and reduce stigma among CAF personnel. Helping soldiers distinguish between normal moral pain and MI, and understanding at what point it would be important to seek care, would be an important addition to this initiative with implications for suicide prevention. Indeed, preliminary studies, including one conducted by our laboratory, suggest that knowledge of MI as a clinically relevant problem, and screening for MI may improve help-seeking among PMIE-exposed individuals (Houle et al., 2022; Nazarov et al., 2020).

Research Objectives

While the literature on MI has grown rapidly and robustly, some important areas remain unexplored. First, the majority of original and retrospective MI research conducted to date has been drawn from US military samples. At the time of conceptualizing my research program, no studies involving CAF service members or Veterans had been conducted. As noted above, this is an important limitation given that the culture and mission objectives of military organizations differ from country to country (Yakovleff, 2007), meaning that the moral context under which military events are experienced are not uniform and may create distinct vulnerabilities with regards to MI. Second, theories of MI have yet to be tested in the general population. As suggested by Litz

& Kerig's (2019) continuum model of MI (described above), the magnitude of impact that a moral stressor may exact on an individual likely depends on the frequency, self-relevance and impact of the stressor. Given that no research has yet examined associations so far descriptive of MI distress in the general population, this remains unknown. Lastly, while the number of studies examining associations among PMIE exposure and psychopathology have continued to grow, there remains a paucity of studies examining the foundational assumptions of MI theory. These include potential vulnerabilities towards experiencing MI distress in the form of dispositional beliefs (i.e., sense of duty), and proneness towards experiencing moral emotions (e.g., guilt, shame, anger; Litz et al., 2009; Tangney et al., 1992).

To address these gaps, two studies were developed and conducted as part of my doctoral research program. The aim of Study 1 was to examine patterns of distress associated with exposure to PMIEs in a sample of CAF service members and Veterans seeking psychological treatment. This was the first study of this kind to be conducted in the Canadian military context. A total of 55 participants were included in the study, all of which reported current distress in response to a PMIE. All participants completed a structured diagnostic interview and self-report measures of PMIE exposure, combat exposure, guilt, anger, PTSD and depression. Eighteen of these participants also completed a semi-structured interview about the impact of their PMIEs. We conducted a thematic analysis of the interview data which aimed to identify patterns of psychological distress prompted by PMIEs across participants. For quantitative data, a hierarchical multiple regression model was conducted to explore the impact of PMIEs on self-reported symptoms of PTSD and depression, guilt and anger, after controlling for combat exposure. Findings largely concurred with existing models of MI, and are discussed in reference to current

conceptualizations of MI, providing comment on the validity and applicability of the MI construct to our Canadian military sample.

In Study 2, our objective was to provide further comment on the validity of the MI construct by assessing whether existing findings central to MI theory, supported by results of Study 1, hold when assessing distress in the context of moral stressors experienced during the COVID-19 pandemic. Specifically, we sought to examine whether guilt and anger were prominent features of distress in response to moral stressors, and if these moral emotions were associated with symptoms of PTSD and depression in the COVID-19 context. Given that research to date had been almost exclusively conducted in the occupational context (with a few studies conducted among refugees, another population with a higher than average risk of trauma exposure; Hoffman et al., 2018; Nickerson et al., 2015) this study was the first to assess patterns of distress and related correlates associated with moral stressors in the general population. As in Study 1, participants in Study 2 (N = 355) completed measures of PTSD, depression, guilt and anger, as well as exposure to moral stressors. Expanding on findings from Study 1, we also explored how trait differences in sense of duty, religiosity, anxiety sensitivity, and guilt, shame, and anger, predicted negative moral appraisals of COVID-19 related stressors. We hypothesized that negative moral appraisals and guilt and anger would be associated with exposure to moral stressors and symptoms of depression and PTSD. We also predicted that higher sense of duty, religiosity, trait guilt, shame, and anger would predict negative moral appraisals, while anxiety sensitivity would have no relationship to negative moral appraisals.

CHAPTER 2: STUDY 1

Patterns of distress associated with exposure to potentially morally injurious events among Canadian Armed Forces service members and Veterans: A multi-method analysis

Interest in the construct of moral injury (MI) has grown rapidly over the last decade, with an ever increasing body of research aimed at better understanding the distress associated with exposure to events that violate moral values and challenge core beliefs about oneself and the world (i.e., potentially morally injurious events, or PMIEs). MI, defined here as a psychological stress response to PMIEs, has been most consistently characterized by intense feelings of shame and guilt, distrust, and spiritual distress or inner conflict associated with the perceived transgression (Litz et al., 2009). Additional reactions to PMIEs may include demoralization, re-experiencing, avoidance, and hostility, among others (Dennis et al., 2017; Farnsworth et al., 2017; Frankfurt & Frazier, 2016; Litz et al., 2018). Prominent hindsight bias and negative attributions that are global, internal and stable are also believed to be characteristic of MI (Litz et al., 2009; Litz & Kerig, 2019).

Although many of these features of MI overlap significantly with post-traumatic stress disorder (PTSD) and depression, there is growing consensus that these entities do not adequately encompass MI. For instance, in much the same way that PTSD has been conceptualized as a disorder of non-recovery (Resick et al., 2014), MI likely represents a failure to reconcile morally difficult experiences with one's dominant beliefs (Farnsworth et al., 2017). MI may therefore differ from PTSD in its etiology (events involving physical threat in PTSD vs. moral transgressions in MI), core emotional reactions (fear vs. guilt and shame), association with physiological stress response systems (hyperarousal may not be associated with PMIEs), as well as the function of symptoms and how they are maintained (avoidance of threat vs. avoidance of social judgement).

Debate on the subject continues to flourish, however most agree that the consequences of PMIEs deserve special attention as a target for mental health intervention.

Exposure to military-related PMIEs, such as killing and witnessing atrocities, have shown strong associations with PTSD, depression, suicidality, and substance misuse (Griffin et al., 2019). While such findings are robust, many researchers contend that greater attention to and typification of different features of military stressors and their sequelae would do much to help guide conceptualization and treatment of psychopathological reactions to morally laden stressful experiences (Litz et al., 2018; Stein et al., 2012).

To date, the majority of research on MI has been conducted in the United States, thereby limiting the generalizability of findings. Indeed, the values and mission objectives of military organizations differ among nations (Yakovleff, 2007) and thereby may provide different moral contexts which are important to consider in understanding individuals' vulnerability to being exposed to and experiencing consequences of PMIEs (Currier et al., 2015). In the Canadian context, for example, military doctrine has historically emphasized peacekeeping and humanitarian operations, whereas the United States tends to prioritize the Warrior identity and defending against enemies of the nation (Fitzsimmons et al., 2014; Yakovleff, 2007). To our knowledge, no in-depth investigation of the psychological consequences of PMIEs has been conducted in Canada, despite evidence that up to 84% of deployed Canadian Armed Forces (CAF) personnel report exposure to such events (Nazarov et al., 2018; Sareen et al., 2007).

Study Objectives

The primary objective of this study was to identify patterns of distress associated with PMIE exposure in Canadian treatment-seeking military members and Veterans. We planned to do this by a) identifying clinically relevant themes of distress across the narratives of PMIE-exposed

participants using qualitative methodology; and b) to compare clinical and emotional outcomes between PMIE exposed participants and those reporting distress related to a non-PMIE traumatic event (e.g., a life-threatening event that did not involve moral decision making or prompt moral distress) using statistical comparisons.

Method

The study was granted ethics approval by the Research Ethics Boards at The Royal Ottawa Mental Health Centre (REB# 2017011) and the University of Ottawa (REB# A06-17-02).

Participants

Participants were current or former military personnel recruited from two clinics in Ottawa, Canada specializing in the treatment of operational stress injuries (i.e., persistent psychological difficulties arising from highly stressful events experienced during the fulfillment of one's occupational duties). Participants were recruited between November 2017 and August 2019. Participants were recruited by two means. At one clinic which services Veterans, any client who provided consent to be contacted for research as of March 2017 was screened for eligibility. At the other clinic, which services active military, clients were referred to the study through one of their clinicians, or by responding to flyers advertising the study in the clinic waiting room. Veteran participants were compensated $50 for their participation and reimbursed for parking. Active duty participants were not compensated, as they participated in the study during work hours.

To determine eligibility, clinical charts were reviewed by a doctoral student in clinical psychology. Potential participants were identified if they a) were currently or once in the military, b) reported distress associated with service-related experiences, and c) were not experiencing active symptoms of psychosis or mania, nor were at imminent risk of suicide or homicidal behaviour as of their most recent clinical assessment. The latter criteria were applied to avoid

inviting potential participants experiencing a severe degree of distress that would interfere with their capacity to participate in the study. Only participants fluent in English were eligible.

A total of 345 potential participants were screened for possible inclusion. Of these, 181 met eligibility criteria and were contacted by phone or e-mail. Of these, 95 individuals consented to be screened further for eligibility by phone by the same doctoral student. To be included in the study, participants needed to report psychological distress related to either a PMIE or a traumatic event. PMIE exposure and distress was assessed by the following questions: *During your time in the military, have you ever experienced or learned about events that damaged your beliefs or expectations about the kind of person you are, the kind of world we live in, or right and wrong ways to treat people? Are you currently experiencing psychological distress as a result of this experience?* In the aim of recruiting a group of participants that were experiencing distress related to a non-PMIE traumatic event, individuals screened by phone were also asked: *During your time in the military, have you ever experienced or learned about events where you or another person was threatened with actual death, serious injury, or sexual violence? Are you currently experiencing psychological distress as a result of this experience?*

Our intention was to collect data from two groups of participants: those who experienced a PMIE, and those who experienced trauma only. Several months into recruitment, no prospective participants endorsed having only experienced a traumatic event. We therefore decided to stop recruitment of a trauma-only group. Screening procedures remained consistent, and by the end of recruitment only 2 individuals (of the 95 screened) reported trauma-only related distress. These 2 individuals were not included in the study.

Of the 95 individuals contacted, 20 endorsed distress related to a PMIE only, 59 endorsed distress related to both a PMIE and a traumatic event. The remaining 16 did not endorse any

current distress related to PMIEs, and were therefore ineligible for the study in its revised form. Therefore, seventy-nine individuals (60 Veterans and 19 active military) met final inclusion criteria and were invited to participate. Nineteen of these declined to participate or did not attend their scheduled appointment. One individual was excluded because they only completed half of the qualitative protocol due to a misfunction with our audio recorder, and did not return to complete the study, despite several attempts to re-schedule. The final sample of complete data was 59.

Materials

Interview Guide

The semi-structured interview used in this study was developed in collaboration with the Moral Injury Outcomes Scale Consortium (Yeterian et al., 2019). Section 1 of the interview described four categories of PMIEs: those that involve witnessing transgressions of others, those that involve transgressing one's own values, those that involve betraying one's own values, and those that involve feeling betrayed by others. Participants were asked if they had experienced any event during their military service that fit each of these categories and were then asked if there was a single worst PMIE that was most distressing to them currently, which category best captured the nature of that event, and in what context it occurred (e.g., warlike operation, peacekeeping, on base). In order to best capture the psychological impact of PMIEs specifically, participants were asked to keep in mind the most distressing PMIE, or category of PMIEs if there was no single index event, while completing the interview.

Section 2 of the interview asked questions relevant to a biopsychosocial-spiritual perspective of mental health. Participants were prompted to describe reactions to their PMIEs, emotions, thoughts and behaviours since the event, and the impact of the event on the participants' life, including impact on identity, spirituality, relationships, and functioning.

Structured Diagnostic Interview

Mini International Neuropsychiatric Interview Version 7.0.2 (MINI; Sheehan et al., 1998). The MINI is a structured diagnostic interview assessing 17 of the common DSM-5 psychological disorders using branching logic. Eight MINI modules were administered to screen for current symptoms of psychiatric disorders most common in Canadian military personnel (major depressive disorder, suicidality, PTSD, alcohol use disorder, substance use disorder, panic disorder, social anxiety disorder, generalized anxiety disorder; Sareen et al., 2007; Zamorski et al., 2016).

Self-Report Measures

Moral Injury Events Scale (MIES; Nash et al., 2013). The MIES is a 9-item self-report measure evaluating PMIE exposure. Each item is rated on a 6-point scale ranging from 1 (*strongly disagree*) to 6 (*strongly agree*). A total sum score represents degree of exposure to PMIEs. This scale yielded a Cronbach's alpha of .80.

Combat Experiences Scale (CES ; King et al., 2003). The CES is a 17-item self-report measure that assesses frequency of deployment-related experiences rated on a 7-point scale ranging from 1 (*never*) to 6 (*daily or almost daily*). Higher scores indicate greater exposure to combat. The CES yielded a Cronbach's alpha of .87 in this sample.

Life Events Checklist for DSM-5 (LEC-5; Weathers, Blake, et al., 2013). The LEC-5 is a self-report screening measure designed to assess exposure to potentially traumatic events in an individual's lifetime.

Trauma-Related Guilt Inventory (TRGI; Kubany et al., 1996). The 4-item global guilt subscale of the TRGI was used to measure guilt. Participants were prompted to keep in mind their

index PMIE as they completed the TRGI. Responses are rated on a 5-point Likert-type scale from 0 (*not at all true*) to 4 (*extremely true*). Cronbach's alpha for this subscale was .96 in this sample.

Dimensions of Anger Reactions (DAR; Novaco et al., 2012). The DAR is a 7-item self-report measure of anger. Items are rated from 0 (*not at all*) to 8 (*exactly so*), with higher sum scores indicating higher anger disposition. The DAR yielded a Cronbach's alpha of .89 in this sample.

Beck Depression Inventory-II (BDI-II; Steer et al., 1997). The BDI-II is a 21-item self-report inventory of depressive symptoms over the previous two weeks. Each item is rated on a 4-point scale ranging from 0 to 3. Total scores describe the severity of depression. Cronbach's alpha in this sample was .94.

Posttraumatic Stress Disorder Checklist for DSM-5 (PCL-5; Weathers, Litz, et al., 2013). The PCL-5 is a 20-item self-report measure of PTSD symptoms. It contains four subscales corresponding to DSM-5 PTSD's four symptom clusters – re-experiencing, avoidance, alterations in cognition and mood, and increased arousal and reactivity. Items are rated on a 5-point scale ranging from 0 (*not at all*) to 4 (*extremely*). Participants were prompted to keep in mind their index PMIE as they completed the PCL-5. Cronbach's alpha in this sample was .94.

Procedure

All study sessions took place at the clinics during regular business hours. After consent was obtained, participants completed the semi-structured interview with the first or second author. Interviews lasted between 60 and 90 minutes. Interviews were transcribed by research assistants and the first author. For those who completed the PMIE interview, a second study session was scheduled during which participants were administered the MINI and completed the self-report questionnaires on a computer. Once theoretical saturation had been reached for the qualitative analysis (see below) participants recruited thereafter completed only the PMIE exposure questions,

the MINI and the self-report questionnaires in one session. These sessions lasted approximately 45 to 75 minutes.

Chart review

Information on past diagnoses and current medications was extracted from participant's most recent assessment by the first author.

Data analysis

Thematic Analysis. The principle of theoretical saturation was applied to determine sample size for the qualitative analysis. Theoretical saturation refers to the point at which new data do not yield additional insights relevant to the research question (Creswell, 1998). We expected between 15 and 25 interviews would be sufficient to reach this threshold (Vasileiou et al., 2018). Once the number of interviews reached 21, recruitment was paused and qualitative data analysis was commenced to gauge data quality and determine if additional interviews would be necessary. Of the 21 interviews analyzed, 3 were excluded: One participant failed to endorse any PMIE, one did not express any current distress associated with a PMIE, and one was excluded based on cognitive deficits that severely affected the quality of the interview narrative. This final sample of 18 interviews was deemed sufficient for the qualitative portion of the study.

The goal of the thematic analysis was to arrive at a detailed description of participants' personal experiences of distress following PMIEs, following Braun and Clarke's (2006) six-stage thematic approach. Themes are defined as patterns of responses in the data that are related to the research question and from which we draw meaning (Braun & Clarke, 2006). The process involves becoming familiar with the data, generating initial codes, organizing codes into potential themes, summarizing data relevant to each theme, reviewing and verifying themes, and defining and naming each theme. The software NVivo (QSR International, 2017) was used to manage the data.

Qualitative analysis is an interpretive process, therefore efforts were made to minimize bias and identify valid and reliable themes. First, care was taken to only code excerpts where the person expressed distress directly linked to the consequences of PMIEs. For example, interviewers would follow-up on responses (e.g., "I am angry") by asking the participant if this experience represented a change from how they were before the PMIE, and it was only coded if it was understood to be a consequence of the PMIE. Second, we applied an abductive approach to coding, which involves relying on both theory and novel data to identify themes pertinent to the research question (Timmermans & Tavory, 2012). This process serves to strengthen the validity of findings in contrast to a more inductive (i.e., grounded) approach, as the primary interest of this study is to examine incremental validity for the MI construct in a Canadian sample. In line with this objective, we focused on identifying and reporting themes of distress unique to PMIE exposure, that is those that do not represent primary features of existing diagnostic entities (e.g., PTSD). Third, the research team met regularly to review coded excerpts and develop themes collaboratively. A subset of interviews were independently coded by SAH, CV and ARA, and the coding structure was revised until consensus was obtained in the interpretation of themes.

In order to help situate the reader regarding the commonality of themes identified in the thematic analysis, the notion of "representativeness of themes," was borrowed and applied from the Consensual Qualitative Research method (Ladany et al., 2012). This approach labels themes appearing in all or nearly all participant narratives as "general," as those appearing in more than half of participant narratives as "typical," and those appearing in less than half of narratives as "variant" and those appearing in one or two narratives (in samples > 15 participants) as "rare."

Quantitative Analysis. We planned to compare PMIE exposure to a trauma-only exposure group on the self-report measures collected. As indicated, however, only 2 individuals screened

reported experiencing trauma without a PMIE. We therefore adjusted our analytic strategy to examine associations among PMIE exposure, combat exposure, PTSD, depression, guilt, and anger using multiple regression. We adjusted our sample size based on a power analysis conducted using G*Power (Faul et al., 2007) for a multiple regression model, which demonstrated that a sample size of 53 was adequate to achieve 80% power in detecting an f^2 of 0.25 with 5 predictor variables. We oversampled to ensure enough participants to account for missing data and attrition. One additional participant, for which we had quantitative data only, was excluded from the quantitative analysis as they had admitted to not completing the self-report questionnaires truthfully. The total sample for the quantitative analyses was 55.

Pearson correlations between all self-report measures were computed. A hierarchical multiple regression model was conducted to explore the impact of PMIEs (MIES) on self-reported psychiatric symptoms (PCL-5 PTSD and BDI-II depression), and negative moral emotions (TRGI global guilt and DAR anger), after controlling for combat exposure (CES).

Results

Participant Characteristics

Demographic and Service-Related Characteristics

The majority of participants were White (92.7%). Number of deployments ranged from 0 to 6 (*M*=2.0, *SD*=1.61), with 64.4% of those deployed having served at least one mission in Afghanistan and 46.7% having served at least one mission in the Balkans. All rank categories and military branches were represented in the sample (see Table 1 for sample characteristics).

Psychopathology

Results of the MINI are shown in Table 1. The most common diagnosis screened for was PTSD followed by depression. Over half of participants indicated some degree of suicidality, with

Table 1

Participant Characteristics

	Qualitative sample (n = 18)		*Total sample (N = 55)*	
	% (n)	*M (SD)*	*% (n)*	*M (SD)*
Age		46.06 (9.10)		47.6 (10.40)
Gender				
Male	77.8 (14)		81.2 (45)	
Female	22.2 (4)		16.4 (9)	
Trans woman	-		1.82 (1)	
Marital status				
Never married, single	5.6 (1)		5.5 (3)	
Married/living together	66.7 (12)		69.1 (38)	
Separated/Divorced	22.2 (4)		18.2 (10)	
Remarried	5.6 (1)		7.3 (4)	
Employment				
Full-time	44.4 (8)		40 (22)	
Part-time	-		5.5 (3)	
Irregular employment	5.6 (1)		3.6 (2)	
Unemployed	5.6 (1)		5.5 (3)	
Retired	22.2 (4)		29.1 (16)	
Full disability	22.2 (4)		16.4 (9)	
Income				
< $10,000	5.6 (1)		1.8 (1)	
$10,000 - $20,000	5.6 (1)		1.8 (1)	
$20,000 – $35,000	-		1.8 (1)	
$35,000 – $50,000	5.6 (1)		5.5 (3)	
$50,000 - $100,000	33.3 (6)		38.2 (21)	
> $100,000	50.0 (9)		50.9 (28)	
Branch of service				
Canadian Army	50.0 (9)		61.8 (34)	
Royal Canadian Navy	5.6 (1)		9.1 (5)	
Royal Canadian Air Force	27.8 (5)		21.8 (12)	
Other (e.g., Special Forces)	16.7 (3)		7.3 (4)	

Duty status		
Regular Force	88.9 (16)	87.3 (48)
Reserve Force	11.1 (2)	12.7 (7)
Duty		
Combat arms	33.3 (6)	34.5 (19)
Combat support	33.3 (6)	43.6 (24)
Combat service support	33.3 (6)	21.8 (12)
Rank[a]		
Pte-MCpl/OS-MS	33.3 (6)	36.4 (20)
Sgt-CWO/PO2-CPO1	55.6 (10)	41.8 (23)
Lt-Capt/SLt-Lt(N)	5.6 (1)	12.7 (7)
Maj/LCdr and above	5.6 (1)	9.1 (5)
Years of service		
< 5	11.1 (2)	5.5 (3)
6 to 10	16.7 (3)	12.7 (7)
11 to 15	11.1 (2)	16.4 (9)
16 to 20	33.3 (6)	23.6 (13)
21 to 25	-	5.5 (3)
26 +	27.8 (5)	36.4 (20)
MINI[b]		
Major depressive episode	61.1 (11)	56.4 (31)
PTSD	61.1 (11)	60.0 (33)
Suicidality[c]	44.4 (8)	54.5 (30)
Past suicide attempt	16.7 (3)	20.0 (11)
Panic disorder	38.9 (7)	25.5 (14)
Social anxiety disorder	44.4 (8)	30.9 (17)
Alcohol use disorder	16.7 (3)	25.5 (14)
Substance use disorder	16.7 (3)	16.4 (9)
Generalized anxiety disorder	44.4 (8)	34.5 (19)
Past psychiatric diagnosis[d]	44.4 (8)	29.1 (16)

Note: Age range 28 – 73. Number of MINI diagnoses in total sample ranged from 0 – 6. [a]Army, Air Force/Navy Ranks; Pte-MCpl/OS-MS: Private - Master Corporal/Ordinary Seaman-Master Seaman; Sgt-CWO/PO2-CPO1: Sergeant – Chief Warrant Officer/Petty Officer 2nd Class – Chief Petty Officer 1st Class; Lt-Capt/SLt-Lt(N): Lieutenant – Captain; Sub-Lieutenant – Lieutenant (Navy); Maj/LCdr and above: Major/Lieutenant-Commander and above; [b]Mini International Neuropsychiatric Interview; current psychiatric symptom presentation. [c]Indicates participant endorsed some degree of suicidality, including suicidal ideation, suicidal self-harm impulses or behaviours. [d]Participants with at least one past diagnosis

indicated in chart, dated prior to the beginning of the study (i.e., before November 2017; 3 missing in qualitative sample, 4 missing in total sample).

20% indicating a past suicide attempt. Sixty-seven percent of participants met criteria for multiple diagnoses (*M*=2.5, *SD*=1.8). Based on the chart review, just under 30% of the total sample had been diagnosed with a psychiatric disorder (4 missing) prior to their most recent assessment.

Scores on measures of PTSD, depression, guilt and anger are shown in Table 2. Mean scores on both the PCL-5 and the BDI-II fell within the clinical range (Steer et al., 1997; Weathers, Litz, et al., 2013).

Medication

Of those taking psychotropic medication (71%, 1 missing), anti-depressants were most commonly prescribed (69.2%) followed by cannabis or synthetic cannabinoids (i.e., nabilone; 35.9%). Other drugs prescribed included anti-psychotics (15.4%), anti-anxiety medication (10.3%), and anti-epileptics (10.3%), lithium (1.2%) and prazosin (1.2%). Most of those on medication were taking multiple medications (64.1%).

PMIE Exposure

The frequency of endorsement of the different categories of PMIEs assessed by the semi-structured interview are shown in Table 3. Of note, 100% of participants endorsed events involving the betrayal of others, and the majority of participants (70.9%) reported that they could identify a single PMIE that was most distressing to them currently. The most common context in which participants' most distressing PMIEs occurred were on base, followed by peacekeeping operations. Mean scores on the MIES indicated a moderate degree of PMIE exposure (Table 2).

Table 2

Means, Standard Deviations, Pearson Correlations and 95% Confidence Intervals for Self-Report Measure

	M (SD) *Range*	1	2	3	4	5	6	7	8	9	10
1. MIES	35.96 (10.14) 16.00 – 52.00	—									
2. CES	30.73 (12.85) 17.00 – 75.00	**-.27 (-.50, -.01)[a]**	—								
3. TRGI	1.95 (1.24) 0.00 – 4.00	**.34[a] (.08, .56)**	.04 (-.23, .30)	—							
4. DAR	28.95 (13.46) 0.00 – 56.00	.27 (.00, .50)	-.11 (-.37, .16)	.27 (.00, .50)	—						
5. PCL-5 Total score	40.85 (18.01) 5.00 – 74.00	**.50[c] (.27, .68)**	-.10 (-.35, .17)	**.50[c] (.21, .64)**	**.77[c] (.63, .86)**	—					
6. PCL-5 Re-experiencing	1.78 (0.95) 0.20 – 4.00	**.29[a] (.03, .52)**	.01 (-.26, .27)	**.35[b] (.09, .56)**	**.54[c] (.31, .70)**	**.77[c] (.64, .86)**	—				
7. PCL-5 Avoidance	2.40 (1.21) 0.00 – 4.00	**.42[b] (.17, .61)**	.04 (-.23, .30)	**.39[b] (.14, .59)**	**.49[c] (.26, .67)**	**.69[c] (.52, .81)**	**.47[c] (.23, .65)**	—			
8. PCL-5 Cognition/Mood	2.00 (1.09) 0.00 – 3.86	**.52[c] (.29, .69)**	-.13 (-.39, .14)	**.39[b] (.14, .60)**	**.74[c] (.59, .84)**	**.93[c] (.89, .96)**	**.58[c] (.37, .73)**	**.59[c] (.38, .74)**	—		

9. PCL-5 Arousal	2.20 (1.01) 0.00 – 3.67	**.45^{c} (.21, .64)**	-.15 (-.40, .13)	**.41^{b} (.16, .61)**	**.73^{c} (.58, .83)**	**.92^{c} (.86, .95)**	**.60^{c} (.40, .75)**	**.54^{c} (.32, .70)**	**.82^{c} (.71, .89)**	—	
10. BDI-II	23.98 (12.53) 0.00 – 53.00	**.36^{b} (.11, .57)**	-.12 (-.37, .15)	**.45^{c} (.21, .64)**	**.71^{c} (.55, .82)**	**.81^{c} (.69, .88)**	**.63^{c} (.43, .76)**	**.50^{c} (.27, .67)**	**.81^{c} (.69, .89)**	**.69^{c} (.52, .81)**	—

Note: Statistically meaningful correlations in bold; $^{a}p < .05$, $^{b}p < .01$, $^{c}p < .001$. Possible ranges for scores: MIES = 9 – 54; CES = 17 – 102; TRGI Global Guilt (standardized across 5-point scale) = 0 – 4; DAR = 0 – 56; PCL-5 Total = 0 – 80; PCL-5 Re-experiencing, Avoidance, Cognition/Mood and Arousal (standardized across 5-point scale) = 0 – 4; BDI-II = 0 – 63.

Table 3

Categorical Endorsement of PMIE Types and Context as per Semi-Structured Interview

	Qualitative sample (n = 18) *% (n)*	*Total sample (N = 55)* *% (n)*
Frequency of endorsement of PMIE type		
Transgression of one own's values	44.4 (8)	40.0 (22)
Witnessing transgression of others	66.7 (12)	76.4 (42)
Betrayal of one's own values	50.0 (9)	50.9 (28)
Betrayal by others	100 (8)	100 (55)
Index event[a]		
Single event	72.2 (13)	70.9 (39)
Multiple events	27.8 (5)	29.1 (16)
Context in which the index PMIE(s) occurred[b]		
Warlike operation	11.1 (2)	25.5 (14)
Peacekeeping operation	27.8 (5)	30.9 (17)
Humanitarian operation	0 (0)	1.8 (1)
Border protection	0 (0)	0 (0)
In garrison/on base	50.0 (9)	36.4 (20)
Other	5.6 (1)	3.6 (2)
PMIE category of index event (single event)[c]		
Transgression of one own's values	30.8 (4)	20.5 (8)
Witnessing transgression of others	7.7 (1)	7.7 (3)
Betrayal of one's own values	0 (0)	2.6 (1)
Betrayal by others	46.2 (6)	46.2 (18)
More than one category	15.4 (2)	23.1 (9)
PMIE category of index event (multiple events)[d]		
Transgression of one own's values	0 (0)	0 (0)
Witnessing transgression of others	20.0 (1)	12.5 (2)
Betrayal of one's own values	0 (0)	0 (0)
Betrayal by others	40.0 (2)	31.3 (5)
More than one category	40.0 (2)	56.3 (9)

Note: [a]Event endorsed as most distressing to the participant currently, as assessed by the interview question: *Of the events that you just thought of, is there a single worst event that has been causing you the most distress recently?* [b]Missing = 1 (cuts across both qualitative and total sample) [c]For those that endorsed a single index event (*n* = 13 in the qualitative sample, *n* = 39 in the full sample) [d]For those that endorsed multiple index events (*n* = 5 in the qualitative sample, *n* = 16 in the full sample)

Trauma and Combat Exposure

All participants (100%) reported exposure to at least one potentially traumatic event on the LEC-5, with the most commonly endorsed index event being warzone exposure (23.6%) followed by severe human suffering (14.5%) and sudden violent death (10.9%). Eighty percent of participants endorsed at least some degree of combat exposure, and scores on the CES indicated a modest degree of combat exposure overall (Table 2).

Thematic analysis

Eight primary themes were identified in the thematic analysis: *changes in moral attitudes, increased sensitivity and reactivity to moral situations, loss of trust in self or others, disruptions in identity, disruptions in spirituality, disruptions in interpersonal relatedness, preoccupation with moral transgression(s), and persistent internalizing or externalizing emotions and behaviours.* Several sub-themes for each were also identified and are described in detail below. The thematic structure is summarized in Table 4.

Changes in Moral Attitudes

Participants described experiencing some change in their way of thinking or feeling about moral situations following their PMIE(s). This included changes in perspectives on the moral nature of groups of people (e.g., ethnic groups, politicians), spiritual entities, (e.g., God), institutions (e.g., the military, the government), as well as specific individuals.

Participants used language suggesting that such changes in moral attitudes represented a stark contrast between previous views and current outlook, for example: “It sure changed my whole outlook on life;” “It changed my entire focus in the military;” “I had a bunch of moral guidelines [...] that was completely shattered, after that event...”

Within this theme, three patterns were identified. The first and most general pattern identified was a *pessimistic or disillusioned view of the moral nature of the self, others, institutions, or the world.* This was most often expressed as an expectation that people or institutions are not trustworthy, prone to wrongdoing, or that the moral nature of the world is inherently dubious. While mistrust was a notable element observed within this theme, the spirit of pessimism went beyond the issue of trust (addressed below), as participants tended to speak of a more generalized sense of pessimism, of a "gloomy" or generally "negative" attitude toward life and the world, and of being "bitter," "jaded," "cynical" or "skeptical" in their views.

The second pattern observed, with variant representativeness, was *moral confusion*, in which participants displayed uncertainty about what they should consider right or wrong, doubt in how to interpret moral situations, or how to carry out moral actions. This mostly related to the self, where participants expressed being unable to reconcile their understanding of their own morality after exposure to the PMIE(s):

> Questioning, what is the point of morals then, you know, if you establish them somewhere along the line and you have them, and if you will cross your own moral code, what's the point of having any of them anyway, you know? You know, can you get away with just tweaking the stories to fit back into your moral code, you know. [...] There just doesn't seem to be a resolution for it, to feel at ease with it, or reshape my new moral compass.

Participants also expressed confusion regarding how to understand the moral fabric of the world more generally, and others' actions within it: "Like it's, it's crazy but it's the way the world works and my sense of trying to figure out what's right and what's wrong, who's right and who's wrong, drove me completely insane."

Lastly, participants expressed *moral rigidity*, whereby participants described a shift towards viewing morality and appraising moral situations in more extreme, black-and-white terms compared to before the PMIE(s). As one participant put it: "Well I think, well I've always known

that, known the difference between being right and wrong. But I think that line just got thicker, like between the two [...] it's more defined, there's no gray area." This theme was also observed with variant representativeness.

Increased Sensitivity and Reactivity to Moral Situations

Often, with a change in attitude toward morality came an increased attention toward moral situations in everyday life. We identified several ways in which this was manifested in the data. The first was *a heightened awareness or focus on moral situations* compared to before the PMIE. This appeared to take the form of an attentional bias towards situations involving moral appraisals (e.g., news stories). Further, participants appeared primed towards applying moral judgments to situations that others may not perceive as prone to moral appraisal, for example the actions of children's sports referees, being cut off in traffic, or being late for an appointment. As one participant describes: "Do what is right. That's really the only standard. [...] now it goes to the more subtle things, like 'it's your job to show up on time, it's rude to be late for an appointment' [...] I'm majoring in the minor, if you will."

Participants also described an *increased sense of personal responsibility* in reaction to PMIE(s). This was particularly true in cases where the participants' sense that they had failed to fulfill a responsibility or duty featured prominently in their PMIE:

> It has a lot to do with my belief that I failed. So I've been overcompensating by being overly protective, basically. And trying to...I've always been one to make sure people around me are happy, and everything. But now it's like ridiculous. It's overboard. [...] And it's all because of this event, and the consequences from it.

Lastly, participants reported *reacting more strongly to moral situations* than they would have before the morally transgressive event. That is, in addition to an increased awareness or tendency to attribute moral appraisals to everyday situations, participants noted that these events triggered stronger emotional reactions (e.g., intense anger, sadness or shame) and/or behavioural

reactions (e.g., chastising others) than before the PMIE(s). The distress associated with this increase in reactivity was manifested in several ways. For example, in not being able to "let go" of one's perception and reaction to some event:

> I became very resentful, and vocal to anything that I saw [...] so if I saw somebody was doing something, I would call them out on it you know. To my own detriment, I would not let it go, you know, so [...] I had my pitchfork and I was like no, no we're not going to do this. We're not going to roll this way anymore.

Other participants spoke of interpersonal conflicts related to being increasingly vigilant and reactive to moral situations, for example distress related to being "too tough" on their children, or arguments with one's spouse stemming from exaggerated reactions to small-scale events (e.g., traffic). All three subthemes were identified with variant representativeness.

Loss of Trust

Mistrust was another general theme observed in this sample, including loss of trust in both self and others to make moral judgements or carry out moral actions. Most typically, participants spoke of changes in their capacity to trust others. Many expressed a generalized attitude of mistrust towards "everyone," although they often identified particular people or groups (e.g., chain of command, politicians, other military members, certain ethnic groups) towards which their perceptions of trust had changed.

With regards to losing trust in oneself, participants whose narratives included this theme expressed an inability to trust that they would do the right thing, or a loss of confidence in their ability to make moral judgements:

> I used to feel good about who I was and the decisions I made and that everything had a purpose, even if I didn't know what it was, it would eventually become clear to me. Now I question every thought I have in my head. [...] I don't feel like I can trust my own thoughts and my own judgements, in a lot of situations.

Though observed with rare representativeness, loss of trust in oneself appeared to be a significant aspect of post-PMIE distress in those that expressed it.

Disruptions in Interpersonal Relatedness

Participants described two main ways in which their perceived ability to relate to others had been impacted by their PMIE(s). First, service members and Veterans expressed that they had *lost a sense of connection to others*, including people or communities that previously held an important place in the person's life (e.g., the "military family," church):

> If I tell my wife I love her, it's because I think she wants to hear it... I don't know, it's just like, it's almost like I'm looking at people from a different perspective, not from my own. It's almost like, not an out-of-body, but a third-party's involved, that's kind of related to the people around me [...] just an emptiness.

Participants also described *feeling guarded around others*, including expressed desire or actions aimed at keeping people at a distance, and not disclosing feelings or experiences. This behaviour appeared to concern the expectation that others would judge or reject them if they were to disclose their experiences or emotions (e.g., "I'm fearful of being found out [...] of being seen as like a bad person, or someone who doesn't fit into society very well"). Some participants expressed the belief that sharing with others is dangerous (e.g., "I don't keep people in that much, so they don't have ways to get me") while others expressed a desire to preserve the untainted worldview of those close to them: "I don't really want to say anything of my experiences that will change [my wife's] very gracious world view. Not my place to do that." Certain participants described their effort to remain guarded as "a role" or "performance," and that keeping up with this was too much effort, leading to withdrawal or isolation. Both subthemes here were identified as being typically representative in the sample.

Disruptions in Identity

Disruptions in identity prompted by PMIEs were manifested in two main ways. First and most typically, participants described a *devalued sense of self*, expressed as negative beliefs about the person's worth or value, such as being weak, worthless, or feeling deeply disappointed in

oneself. For some, this was characterized as a sense of being tainted or morally defined by one's PMIE: "I thought of myself as a bad person, I was always thinking of how, if I ever told [what happened] to your average Canadian, would they look at me and think, 'this guy's a monster.'" Such statements appeared more often in cases where self-transgressions were reported.

The second subtheme, identified with variant representativeness, was *dissonance regarding views of their present self* in contrast to pre-PMIE conceptions. Expressed uncertainty about who they are, or a change in or loss of some element of the self previously seen as important was common within this subtheme (e.g., "Prior to, [I was] happy-go-lucky, big partier [...] I think that's the one big personality change, I think was that I have this more, aura of a seriousness").

One participant, among others, expressed explicitly the way in which this shift was prompted directly by actions that occurred during the PMIE:

> I think it's made me something that I wouldn't have chosen, so, but I don't know what it is, I just know, I feel like I, out of all of this am now someone who has participated in something that if I were to rewind the tape, I wouldn't have chosen for myself, you know what I mean?

Disruptions in Spirituality

A majority of participants reported that their PMIE(s) prompted changes in their spiritual or religious beliefs, the role of spirituality or faith in their life, their relationship with some higher being, or their understanding of values and meaning. This was evidenced by two variant themes: *spiritual dissonance,* and *a sense of loss*.

Regarding *spiritual dissonance*, participants expressed struggling to understand or reconcile their spiritual beliefs, values or purpose:

> It made me question, my value to... Not so much the service, but more to, society. Like what purpose am playing in society? Am I a good man or am I a bad man, kind of thing? Am I on the right side or am I... you know, kind of like... Fulfilling a wrongful purpose?

Participants also expressed dissonance regarding their understanding of spirituality more broadly:

> ...it's possible that [the event] was a catalyst to make me want to find what's next. Is there a Heaven? Is there a Hell? Are you reincarnated? Where do you go from here? Are you a soul-less husk, that once you die, that's it? There's no more? It's all black? You don't understand? You don't feel anything?

The second subtheme identified was *a sense of loss* regarding some previously important belief system, transcendent being, value, or other source of meaning, purpose, or understanding. Certain participants described their PMIE(s) as "destructive" in this regard, as having had some sense of meaning or belief "taken away" from them. Participants also expressed feeling "lost," "aimless" and "without purpose" as a result of being exposed to their PMIE(s). Some explicitly stated losing faith in God or a higher power, and "turning [one's] back" on religion. Such sentiments were expressed both in cases where participants reported witnessing immoral acts (e.g., "...from what I've seen, no all-powerful God would let that happen") and in situations where they felt they had a role in immoral acts: "...it gets to a point where I don't think you know if it's right or wrong, it's just the way we do it. Right? So you just-[...] you almost lose your morals. Cause it's just the way it is, so do it."

Preoccupation with Morally Transgressive Events

A variant subset of participants expressed distress related to being preoccupied with or ruminating about the morally transgressive event. This entailed intentional and repeated reviewing of the event(s) in one's mind, often with the intention of reconciling the morally transgressive event by reappraising their own or others' choices and actions:

> Like just, like why it happened, like how could I have avoided it, was there another solution that could have happened. [...] like if I could go back in time like, how would I have done it differently, if I could have done it differently. [...] new things come to my mind all the time so it just kind of, triggers me back to like, okay could I have said something differently, could I have done something differently? Maybe it would have changed the outcome...

Persistent Internalizing or Externalizing Emotions and Behaviours

The most prominent internalizing emotions observed were guilt, shame, anxiety and sadness, and the most prominent externalizing emotion was anger (including milder forms, such as irritability). These patterns often represented prolonged reactions to the morally transgressive event, for example a pervasive emotional state of anger: “I feel angry [...] I know half the time it’s nothing towards that person, it’s toward the situation or what’s going on in my head like I just need to get those outbursts out.” They also often appeared in conjunction with features described above (e.g., guilt in response to rumination about the PMIE, sadness in response to disruptions in identity).

Quantitative analyses

Descriptive statistics and Pearson correlations among self-report measures are presented in Table 2. Surprisingly, combat experience was negatively related to degree of PMIE exposure, and was not meaningfully related to any of the symptom measures. PMIE exposure was positively correlated with measures of depression, PTSD and its sub-components, as well as with guilt, but not with anger. All symptom measures were intercorrelated.

Relationship Among PMIEs, Combat Exposure, Guilt, Anger, PTSD, and Depression.

A hierarchical linear regression analysis was conducted to evaluate the associations among degree of PMIE exposure and symptoms of PTSD and depression, as well as guilt and anger, after controlling for combat exposure. Scores on the MIES were predicted by the CES in the first step of the model, F (1) = 4.16, p = .046, R^2 = .07, f^2 = .08. The addition of other variables to the model increased the prediction of the scores on the MIES, ΔR^2 = .29, F (4) = 5.54, p = .001, R^2 = .36, f^2 = .56. Regarding the contribution of specific predictors, only the CES and PCL-5 scores emerged as meaningfully related to degree of PMIE exposure (Table 5).

Table 4

Summary of Themes of Distress Prompted by Potentially Morally Injurious Events

Theme	Description	Representativeness
Change in moral attitude	Marked change in the person's attitude towards morality and moral situations.	General
Pessimism/disillusionment	Person displays a pessimistic or disillusioned view of self, others, and/or institutions. Includes the expectation that people and institutions are not trustworthy or are otherwise prone to wrongdoing, or that the moral nature of the world is inherently dubious.	General
Moral rigidity	Person displays a rigid sense of right/wrong (e.g., black and white thinking). Applies to one's own actions and those of others.	Variant
Moral confusion	Person displays uncertainty about or reported questioning what they should consider right or wrong, doubt in how to interpret moral situations, or how to carry out moral actions.	Variant
Increased sensitivity/reactivity to moral situations	Increased attention and reactivity towards moral situations.	Typical
Heightened awareness or focus on moral situations	Person displays a heighted awareness or focus on moral situations, including events that others might not perceive as prone to moral judgment (e.g., being cut off in traffic).	Variant
Increased sense of personal responsibility	Person displays an increased sense of personal responsibility, of needing to fulfill one's responsibility or duty towards self and others.	Variant

Heightened reactivity to moral situations	Person displays an increased awareness or tendency to attribute moral appraisals to everyday situations, and/or to react more strongly to such events than they did prior to the PMIE.	Variant
Loss of trust	Loss of trust in self or others (including institutions and important sources of spirituality or faith) to make moral judgements or carry out moral actions.	General
Loss of trust in others	Person displays distress related to being able to trust others, including particular people, groups of people or institutions.	Typical
Loss of trust in oneself	Person displays distress related to being able to trust themselves to make moral judgments or carry out moral actions.	Rare
Disruptions in interpersonal relatedness	Disruptions in the person's ability to relate to others.	Typical
Loss of a sense of connection to others	Person expresses that they have lost a sense of connection to others, including people or communities previously deemed important.	Typical
Guardedness	Person expresses desire or actions aimed at keeping people at a distance, and not disclosing significant feelings or experiences.	Typical
Disruptions in identity	Marked change in the person's view of themselves, including dissonance regarding important attributes of one's identity, or a devalued sense of self.	Typical
Devalued view of the self	Person expresses negative belief about their worth or value as a person, or what they deserve in life. Includes extreme dislike of oneself (e.g., self-loathing, self-hatred) and view of the self as weak, or worthless, tainted, immoral, contaminated, or permanently altered in some other way because of the PMIE.	Typical

Identity dissonance	Person expresses uncertainty about who they are, a change in or loss of some element(s) of the self previously seen as important to one's identity that they struggle to understand or reconcile.	Variant
Disruptions in spirituality	Disruptions in spirituality, including changes in the person's spiritual or religious beliefs, perception about the role of spirituality or faith in the person's life, or the person's relationship with some higher being or source of values, meaning or divine order.	Typical
Spiritual dissonance	Person expresses uncertainty about their spiritual beliefs and/or values, or change in some element(s) of their spirituality previously seen as important or meaningful that they struggle to understand or reconcile.	Variant
Loss of spirituality	Person expresses a loss of some element(s) of their spirituality previously seen as important. Includes perceived loss of personal values/purpose and loss of faith in previous source of spirituality.	Variant
Rumination	Preoccupation with or rumination about the morally transgressive event or other moral situations.	Variant
Internalizing/externalizing emotions and behaviours	Persistent pattern of internalizing (e.g. guilt, shame, anxiety) or externalizing (e.g., anger) emotions and behaviours.	General

Note: Themes are bolded, subthemes appear below.

Table 5

Multiple Regression Analysis Examining the Associations Among Guilt, Anger, PTSD and Depression, Combat and PMIE Exposure

	B	SE (B)	β	*t*	95% CI	Partial *r*
Step 1						
CES	-.21	.10	-.27	-2.04*	-.42 - -.00	-.27
Step 2						
CES	-.20	.09	-.25	-2.16*	-.38 - -.01	-.30
TRGI	1.31	1.08	.16	1.21	-.86 – 3.48	.17
DAR	-.19	.14	-.25	-1.34	-.47 - .09	-.19
PCL-5	.39	.13	.70	3.12**	.14 - .65	.41
BDI-II	-.10	.17	-.12	-0.60	-.43 - .23	-.09

Note: *$p < .05$, ** $p < .01$

Discussion

The purpose of this study was to describe the distress associated with exposure to PMIEs in a Canadian sample of Veterans and military personnel, to present clinical characteristics of those seeking treatment for such distress, and to examine the associations among the degree of PMIE exposure, combat exposure, psychopathology, and negative moral emotions. Eight primary themes were identified through thematic analysis: *change in moral attitude, increased sensitivity and reactivity to moral situations, loss of trust, disruptions in identity, disruptions in spirituality, disruptions in interpersonal relatedness, rumination, and internalizing and externalizing emotions and behaviours.* Self-report data revealed that PMIE exposure was positively associated with psychological distress, most notably to symptoms of PTSD, whereas combat exposure was negatively associated with degree of PMIE exposure.

In line with existing literature, our qualitative analysis revealed that spiritual struggles, loss of trust, social consequences, and emotions such as guilt and anger were prominent among Canadian PMIE-exposed Veterans and service members. Previous studies have shown that PMIEs are associated with spiritual distress, including loss of previously held beliefs (Currier et al., 2017; Purcell et al., 2016), and doubting one's beliefs (Evans et al., 2018) – features that overlap meaningfully with our findings. The social impacts of PMIE exposure have also been widely documented, with studies indicating that PMIE exposure is associated with relationship problems, including a tendency to be wary of others, feel disconnected from other people and one's community, and believing that one must hide one's experiences from others in order to maintain relationships (Kopacz et al., 2018; Maguen et al., 2010; Purcell et al., 2016). Our findings constitute additional qualitative evidence that disruptions in trust and relationships are meaningful and central consequences of PMIEs among service members and Veterans.

Regarding the emotional impact of PMIEs, several interesting findings emerged. First, the moral emotions of shame, guilt, and anger were all exemplified in participant interviews, however we found that neither self-reported anger nor guilt was associated with degree of PMIE exposure after accounting for PTSD and depression. One possible explanation for this may be that, due to our modest sample size, we were unable to conduct a more fine-grained analysis of the impact of different PMIEs on emotional distress. Indeed, previous research has shown that guilt and anger are more strongly associated with particular types of PMIEs, with anger more commonly associated with events that involve betrayal and transgressions by others, and guilt more strongly associated with events involving transgression perpetrated by oneself (Jordan et al., 2017; Litz et al., 2018; Stein et al., 2012; Williamson et al., 2020). In addition, the PCL-5 contains items assessing self-blame as well as negative emotions, including guilt and anger. It may therefore be

that guilt and anger were not shown to have any meaningful relation to PMIE exposure because these emotions were adequately captured by the PCL-5. Future research should aim to account for these nuances. Further, researchers should account for the fact that shame and guilt are related but distinct emotions, as they may be prompted by different events, motivate different behavioural responses, be maintained by different mechanisms, and lead to different outcomes (Øktedalen et al., 2014; Tangney et al., 2007). To date, studies on the consequences of PMIEs have tended to focus on guilt, however evidence is emerging that certain types of PMIEs may be differentially associated with hopelessness, guilt, and shame – findings that may have important implications for our understanding of the relationship between MI and suicidality (Bryan et al., 2014; Bryan et al., 2016; Levi-Belz & Zerach, 2018; Stein et al., 2012).

Participants in this study also commonly expressed sadness and anxiety, emotions that have been previously observed in the context of PMIEs (Litz et al., 2018; Stein et al., 2012; Williamson et al., 2020). For example, one study examining the emotional aftermath of different types of potentially injurious events demonstrated that those involving traumatic loss and exposure to the aftermath of violence are more strongly associated with posttraumatic sadness than other types of PMIEs (Litz et al., 2018). A recent qualitative study by Williamson and colleagues (2020) compared the narratives of non-treatment seeking male military Veterans exposed to only a traumatic event (as defined by Criterion A in the DSM-5), a PMIE, and a “mixed” event (i.e., involved a moral transgression in the context of a traumatic event) and found that anxiety was more prominent in individuals exposed to traumatic events relative to other groups. While our plan for this study was to recruit individuals reporting distress stemming from a non-morally-laden traumatic experience to compare with PMIEs, this was not possible in our sample, as there were

only two potential participants screened who reported having experienced trauma only. Future research should aim to conduct such comparisons.

Regarding the impact of PMIEs on cognition and attitudes, the themes *changes in moral attitudes* and *increased sensitivity and reactivity to moral situations* represent additional features of PMIE related distress that may serve to extend our understanding of MI in a number of ways. First, these themes highlight important cognitive features of MI that may provide insight into mechanisms contributing to the maintenance of MI distress. For instance, passages demonstrating participants' increased sensitivity and reactivity to mundane moral situations hint at a potential attentional bias towards morally laden stimuli. Attentional bias is a mechanism relevant to cognitive models of PTSD, anxiety and depression, and has been well supported by research (Beck, 1967; Dalgleish & Watts, 1990; Mobini & Grant, 2007; Pineles et al., 2009). Thus, a better understanding of how such biases relate to MI may illuminate cognitive mechanisms common to MI and these disorders. Second, patterns of moral attitudes observed in this sample, in particular rigidity and pessimism, correspond with cognitive errors common in anxiety and depressive disorders (e.g., all-or-nothing thinking, filtering). Additional insights into these patterns may therefore support the application of existing evidence-based, cognitive behavioural interventions for trauma, anxiety and depressive disorders to MI.

Another cognitive feature of distress identified is *preoccupation with the PMIE*, or rumination. Previous qualitative investigations have also identified rumination as a feature of MI (Held et al., 2018; Williamson et al., 2019). This is not entirely surprising, given that rumination has been consistently linked with psychological problems, such as depression and PTSD (Spasojević & Alloy, 2001; Zetsche et al., 2009), however further consideration of the role of rumination in MI may have important consequences for how we conceptualize and treat such

distress. For instance, research in civilian populations suggest that depressive and anger-related rumination are distinct processes (du Pont et al., 2018), and that rumination is negatively associated with self-compassion and forgiveness, and positively associated with hostility, shame, and pessimistic thinking (Cheung et al., 2004; Lenferink et al., 2017; Lyubomirsky & Nolen-Hoeksema, 1995; McCullough et al., 2007; Thompson et al., 2005). This supports the hypothesis that rumination serves as a mechanism by which MI is maintained (Litz et al., 2009). Indeed, mindfulness, self-compassion, and forgiveness are elements core to proposed strategies for relieving MI (Farnsworth et al., 2017; Kelley et al., 2019; Litz & Carney, 2018). However, the impact of these interventions on specific cognitive processes such as rumination has not been systematically studied in relation to MI. In addition, future research should aim to tease apart the influence of rumination and re-experiencing in MI and PTSD, as research suggests re-experiencing may be an important feature of distress in both problems (Litz et al., 2018; Shea et al., 2017; Stein et al., 2012), though qualitative differences in how re-experiencing presents in response to life-threat events versus PMIEs likely exist (Litz et al, 2009; Williamson et al., 2020).

Regarding the associations among PMIE exposure and psychopathology in this study, several findings warrant discussion. First, given our clinical sample, it is not surprising that such a high proportion of individuals met criteria for a psychological disorder on the MINI. Further, given the nature of the study and the documented associations among PMIE exposure and suicidality, it is also not surprising that such a high proportion of participants (55%) exhibited current suicidality. Importantly, however, while PTSD and depression were the most commonly observed disorders in this sample, correlations among self-report measures of PMIE exposure, PTSD and depression were only moderate in strength, and PTSD was the only symptom measure to be associated with PMIE exposure in the regression model. While findings support the

interrelations among these factors, as shown by correlations and the overall regression model, it also highlights that MI is not synonymous with either depression or PTSD. It is likely that, due to our modest sample size, our chosen analysis was unable to account for the complex associations among different PMIE subtypes and psychopathology, as demonstrated in previous studies. Though it was not within the scope of this paper to examine how specific qualitative themes of distress were associated with different psychological disorders, future studies should aim to examine this further. This is especially the case with suicidality, as a growing body of research indicates a strong association between exposure to PMIEs and suicidal thoughts and behaviours (Bryan et al., 2014; Bryan et al., 2016; Kelley et al., 2019; Levi-Belz & Zerach, 2018). Targeted qualitative examinations of PMIE related distress in relation to known aspects of suicidology, for example, is highly warranted.

Second, the majority (67%) of participants in this study met criteria for more than one disorder, with panic disorder, social anxiety disorder (SAD), alcohol use disorder, and generalized anxiety disorder (GAD) each observed in at least a quarter of participants. While significant attention has been paid to MI in the context of PTSD and depression, little is known about how PMIE exposure may prompt patterns of pathology that fit with other diagnoses. For example, given the interpersonal impacts and dissonance engendered by PMIEs, the notion that such events may prompt fears of social rejection akin to SAD or the uncertainty characteristic of GAD is not unfounded. In fact, research among formerly deployed CAF members and Veterans has demonstrated that those with SAD exposed to atrocities report a higher perceived need for care compared to those with SAD who were exposed to combat only (Sareen et al., 2007). Moreover, a recent study demonstrated that PMIE exposure, but not combat exposure or personal injury, was significantly associated with GAD symptom severity (King et al., 2020). Additional research as to

the longitudinal associations among PMIE exposure and a variety of psychological disorders is therefore warranted.

Lastly, we found that combat experiences were negatively associated with degree of PMIE exposure in our regression model. This association was maintained with the inclusion of our other predictors, however the strength of the model increased substantially with the inclusion of guilt, anger, depression, and PTSD, the latter being the most impactful predictor of MIES scores. We consider several possible explanations for this finding. First, while the negative association observed is somewhat surprising, previous research does support the distinction between the constructs of combat and PMIE exposure (Nash et al., 2013). Further, factors such as one's expectations of military experiences, which was not accounted for here, may play a role in individuals' reactions to such events and how impactful they are. For example, military members may expect to have their life threatened by combat during their service, but may not expect to encounter difficult ethical scenarios (Thompson & Jetly, 2014). Indeed, existing research suggests that when controlling for combat experiences, PMIE exposure accounts for an important degree of variation in psychiatric symptoms and MI outcomes (Dennis et al., 2017; Jordan et al., 2017; Maguen et al., 2009), suggesting that it may indeed be the transgressive (i.e., unexpected) quality of PMIEs, regardless of the context or experiences themselves, that drives MI distress.

Further, degree of combat exposure in this sample was relatively low compared to previous studies, and the most common context in which participants' index PMIEs occurred was on base (36.4%). While much research on MI focuses on deployment-related events, there is recognition that other types of events such as sexual trauma and institutional betrayal, both within and outside the military context, can prompt MI distress (Dadouch & Lilly, 2021; DeCou et al., 2019; Frankfurt et al., 2018; McCormack & Ell, 2017). In this study, due to concerns surrounding confidentiality,

participants were asked to endorse PMIEs categorically and therefore no examination of the qualities of PMIEs themselves was possible. Indeed, due to the delicate nature of the experiences being studied, researchers often have to work around ethical concerns, which has led to a general lack of detail on PMIEs in the MI literature. Additional information as to what experiences lie along the continuum of PMIEs, as well as the contexts in which they occur, is sure to provide additional predictions about how varying degrees of moral stressors impact psychological distress and functioning (Litz & Kerig, 2019).

In the same vein, it is particularly noteworthy that during recruitment for this study so few treatment seeking service members and Veterans (2/79 of those reporting current distress) reported current distress related to life-threat only trauma, and rather the grand majority of those screened for inclusion reported distress related to a PMIE. Whether or not this reflects a tendency for PMIEs to cause more distress and dysfunction compared to life-threat trauma, or that the quality of distress is more likely to prompt help-seeking, remains to be explored in detail. However, evidence from the literature on interpersonal trauma, in which there can be understood to be an element of potential betrayal or moral transgression when a perpetrator is known, has consistently shown this type of experience to be associated with more severe psychological consequences compared to non-interpersonal trauma, suggesting that the transgressive quality of the trauma may play an important role in its sequelae (e.g., Ehring & Quack, 2010; Forbes et al., 2012). Such parallels support the trend towards typification of trauma in psychopathology research, both within and outside the military, and additional research is therefore needed to assess PMIE types and their impacts across contexts.

While the purpose of this study was to elicit and describe general patterns of distress across all types of self-reported PMIEs, it is likely that – as has been theorized in the MI literature – the

representativeness of the different themes observed may have varied according to PMIE type (e.g., loss of trust in oneself vs. others). For this reason, caution should be taken in interpreting representativeness of themes. Still, we believe that demonstrating such variability in MI themes provides an indication as to which themes may be more likely to generalize to the experience of individuals injured by morally transgressive events. Indeed, investigations of the associations among PMIE type and themes of distress are complex, and need to account for factors such as participants' capacity for reflective functioning, willingness to disclose extremely shameful experiences and, in some cases of military PMIEs, concerns about divulging extremely sensitive and protected details of military operations. In this regard, additional research among clinicians with experience working with PMIE-exposed populations is likely to enhance our understanding of the construct and provide viable avenues for intervention (Drescher et al, 2011; Yeterian et al., 2019).

An additional limitation of this study is the lack of detail as to the onset of PMIE-related distress relative to the event(s). Indeed, theories of MI purport that individuals who experience psychological consequences of PMIEs may perceive the event as transgressive and distressing as it occurs, or may only experience a moral reaction to the event sometime after (Litz et al., 2009). Additional studies, especially those of longitudinal design, are needed to better understand patterns in the onset of moral distress.

Furthermore, the study is limited by its reliance on the MIES to measure PMIE exposure. This measure was one of the first to be used in studying MI, and has been both criticized and praised for its conflation of PMIE exposure with distress (Koenig et al., 2019). Indeed, as noted above, the literature to date lacks important information about the qualities of PMIEs that reliably lead to distress. Given that consensus has not yet been reached with regards to defining both PMIEs

and their outcomes, researchers are continuing to work out how best to measures both of these important aspects of the MI construct (Koenig et al., 2019).

Conclusion

This study represents the first in-depth multi-method examination of the psychological consequences of PMIEs among Canadian military personnel and Veterans. Qualitative results support existing findings regarding the experience of MI and highlight several features of distress to be examined in future research, including the impact of PMIEs on cognitive processes such as attention and memory. Quantitative findings revealed that PTSD symptoms, but not anger, guilt, or depression were associated with degree of PMIE exposure. Additional studies are needed to examine the basic assumptions in MI theory, such as the roles of rumination and shame, as well as studies examining the differential impact of PMIE subtypes on MI. This study is limited by its treatment-seeking sample and lack of trauma-only comparison group. Additional research among non-treatment-seeking and non-PMIE exposed individuals, as well as non-combat exposed and non-military populations at risk for MI (e.g., health care workers, first responders) is needed to better understand the dimensionality and universality of the construct. Research is also sorely needed among female service members and Veterans, as well as among individuals with diverse racial, gender and sexual identities, as to date little is known about how these identities and their intersections may influence exposure to PMIEs and their consequences.

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CHAPTER 3: BRIDGE[1]

Findings from Study 1 showed that the profile of distress described to date in the literature on MI was also identified in our sample of CAF members and Veterans in Ottawa. Eight major themes were identified in the qualitative analysis, including changes in moral attitudes after a PMIE, increased reactivity and sensitivity to moral situations, loss of trust, disruptions in identity, spirituality, and interpersonal relatedness, as well as rumination and various internalizing and externalizing emotions (including guilt and anger) and behaviours. Quantitative findings revealed that combat exposure was negatively associated with degree of PMIE exposure, and that after controlling for combat exposure, symptoms of PTSD were most significantly associated with PMIE exposure relative to self-reported guilt, anger and depression. Given that the PTSD construct, in particular the cognition and mood dimension (symptom Cluster D), can be understood to encompass the other negative emotional features considered in the analysis (i.e., guilt and anger), it may be that we simply did not have adequate power in this study to examine the nuances in *how* guilt and anger as features of PTSD vs. MI are related to PMIE exposure. Indeed, as discussed above, PTSD and MI are understood to be overlapping but distinct constructs, and it is rather the *prominence* of moral emotions such as guilt and anger that are hypothesized to be driving the associations among PMIE exposure and psychopathology observed to date (Farnsworth et al., 2017; Griffin et al., 2019; Litz et al., 2009; Williamson, Murphy, Stevelink, et al., 2021). However, results cannot rule out the possibility that other features of PTSD such as reexperiencing and avoidance, which have also been shown to present in the aftermath of PMIE exposure, are more important in their association with PMIE exposure compared with guilt and shame as observed in

[1]Due to formatting limitations for publication of Study 2, the introduction for that manuscript was shortened. As such, additional details of the rationale and variables to be examined are expanded upon in this section.

this sample.

A handful of studies conducted thus far have attempted to reveal potential nuances in the associations among PMIE exposure, guilt and anger, and psychopathology using structural equation modeling. For instance, in a sample of combat-exposed male Veterans with PTSD, Frankfurt and colleagues (2017) found that PMIE exposure was indirectly associated with symptoms of PTSD through the experience of guilt, whereas fear was found to mediate the association between combat exposure and PTSD. Similarly, Jordan and colleagues (2017) found that, in a sample of active-duty US Marines, anger mediated the association between betrayal-based PMIEs and PTSD, and that shame and guilt provided a weaker yet detectable mediating effect on the relationship between perpetration-based PMIEs and PTSD. These findings were replicated and extended in an additional study of post-9/11 era Veterans (Lancaster, 2018), which found small indirect effects of self-based transgressions on PTSD via guilt but not anger, and indirect effects of betrayal on PTSD via both guilt and anger. This study further demonstrated similar patterns of effects in the context of depression, where the association between self-based transgressions and depression was partially influenced by guilt and shame, but not anger. Both anger and guilt/shame, however, were found to mediate the association between betrayal and depression. Additional associations have been observed in the context of depression among treatment-seeking Vietnam-era Veterans, where guilt has been shown to mediate the association between exposure to war-time abusive violence and atrocities and symptoms of depression (Dennis et al., 2017; Marx et al., 2010).

Beyond the experience of combat, studies investigating the role of MI in Veterans having experienced sexual harassment have demonstrated indirect associations between exposure to sexual harassment and symptoms of depression, anxiety and PTSD through the experience of

other-directed expressions of MI (e.g., sense of betrayal, anger; Frankfurt et al., 2018; Hamrick et al., 2021). In one such study that directly examined the experience of moral emotions, shame but not guilt was found to mediate the association between military sexual harassment exposure and symptoms of PTSD and depression (Frankfurt et al., 2018). Hamrick and colleagues (2021) examined the influence of other-directed expressions of MI on the association between sexual harassment and clinical symptoms, observing mediating effects for symptoms of depression, anxiety and suicidal ideation. In sum, the above studies lend support to the theory that moral appraisals and emotions serve as an important mechanism in the development and maintenance of symptoms of psychopathology in the context of military PMIEs. Evidence pertaining to these key assumptions however remains sparse, as does evidence regarding the generalizability of findings beyond the military context.

Along with the paucity of research on moral stressors outside the occupational context, research is lacking as to what factors may predispose someone to experience psycho-spiritual distress in response to moral stressors. Theories of MI have posited that factors such as proneness to experiencing moral emotions and having a rigid moral code may increase the likelihood of adverse outcomes in the aftermath of PMIEs (Corley, 2002; Litz et al., 2009), however research has yet to examine these assumptions. Indeed, in the military and health care contexts, theorists contend that a strong professional ethos (e.g., “do no harm” for health care workers, “protect and serve” for police, “duty with honour” in the military) may promote the adoption or internalization of rigid moral codes which may predispose an individual to moral distress (Blumberg et al., 2018; Corley, 2002; Litz et al., 2009). I was unable, however, to find any studies that have examined these assertions empirically. Another factor that has been hypothesized to influence an individuals’ vulnerability to experiencing MI is religiosity/spirituality (Kopacz, 2014; Kopacz et al., 2015;

Worthington & Langberg, 2012). Studies have shown that religious and spiritual struggles are negatively associated with well-being (e.g., Currier, Holland, & Malott, 2015; Exline et al., 2014; Hodapp & Zwingmann, 2019; Smigelsky et al., 2020), however research on whether an individuals' religious and spiritual beliefs may predispose an individual towards MI has yet to be examined in detail (Bremault-Phillips et al., 2019). In studies that have examined associations among dispositional religiosity/spirituality and mental health outcomes in military samples, results appear to be mixed. For instance, a study by Wilt and colleagues (2019) found that religiosity was positively associated with spiritual struggles in a US Veteran sample. Another study by Yan and colleagues (2016) also conducted among US Veterans of the wars in Iraq and Afghanistan showed no association among strength of religious/spiritual beliefs and mental health, whereas a study among female service members in the US demonstrated that low intrinsic religiosity was associated with higher levels of posttraumatic stress (Richardson et al., 2021). It is worth noting, however, that these latter two studies are limited by relatively low statistical power. Nevertheless, the fact remains that the question of whether one's dispositional religiosity/spirituality may predispose them to MI specifically has yet to be addressed.

Litz and colleagues (2009) have also noted that anxiety sensitivity may be less strongly associated with moral distress than with fear-based outcomes (e.g., anxiety disorders, PTSD), however they fail to elaborate on the mechanisms supporting this hypothesis. Anxiety sensitivity refers to an individual's tendency to respond fearfully to their anxiety-related bodily sensations, and to believe that these sensations will have negative social, physical, and psychological consequences (Olatunji & Wolitzky-Taylor, 2009; Reiss, 1991). The construct has been widely studied in the context of anxiety disorders, with findings demonstrating the strongest associations among anxiety sensitivity, panic disorder and PTSD (Olatunji & Wolitzky-Taylor, 2009).

Associations among anxiety sensitivity and mood disorders have also been observed, highlighting its importance as a transdiagnostic construct (Naragon-Gainey, 2010; Olatunji & Wolitzky-Taylor, 2009; Smits et al., 2019; Zvolensky et al., 2018). In the context of traumatic stress, anxiety sensitivity has been shown to both predispose an individual towards developing PTSD, as well as maintain symptoms of the disorder (Fedroff et al., 2000; Lang et al., 2002; Marshall et al., 2010). Such findings fit well with the cognitive model of PTSD (Ehlers & Clark, 2000), which purports that a key maintaining factor in PTSD symptomatology is individual beliefs about impending threat. With regards to MI the notion of impending danger may be less relevant, as the focus of distress centers around spiritual dissonance, damaged identity, and moral emotions rather than physical threat. Taken together, these premises support the notion that catastrophic beliefs about one's anxiety-related sensations would be less important in MI compared to PTSD. These assertions, however, have yet to be empirically examined.

Another trait-level factor hypothesized to predispose an individual to MI is proneness to moral emotions. Research has consistently demonstrated that trait-level anger, guilt, and shame are associated with problems such as depression and anxiety (Barrett et al., 2013; Cassiello-Robbins & Barlow, 2016; Dorahy et al., 2013; Kahramanol & Dag, 2018; Tangney et al., 1992). Regarding associations with moral distress, however, the literature remains sparse. I was only able to find one study examining associations among trait-level moral emotions and moral distress conducted in the nursing context (Barr, 2021), which showed that shame proneness but not guilt proneness was associated with demoralization, a factor relevant to both burnout and moral distress. Nevertheless, the theoretical rationale for the role that proneness to moral emotions may play in the psychological problems characteristic of MI is rather cogent. For instance, research has demonstrated that guilt proneness (i.e., a predisposition towards experiencing negative feelings in

the face of one's personal wrongdoing) is associated with increased ethical behaviour, honesty, empathy and moral identity (Cohen et al., 2011, 2012; Fang et al., 2019; Tangney et al., 2011). It follows, then, that individuals higher in guilt proneness would be at risk of experiencing negative emotional reactions to PMIEs, at least in the case of the commission or omission of behaviours that transgress their own values. Similarly, proneness towards shame (i.e., a predisposition towards experiencing negative emotions about one's self-worth), may create a vulnerability for MI for several reasons. For instance, shame-prone individual may display a higher tendency to internalize guilt in the face of wrongdoing (Tangney et al., 1992), they might view their PMIEs as more personally damaging, or they may present more difficulty reconciling their sense of identity with their experiences. All of these hypothesized mechanisms remain untested. Lastly, trait-level anger refers to an individual's tendency to experiencing anger emotionally as well as behave aggressively in a wide range of situations (Barrett et al., 2013; Spielberger, 1999). Research has shown that individuals high in trait anger tend to present an attentional bias towards social information that could be perceived as hostile, are more likely to appraise others' behaviour has hostile, and are more likely to ruminate over past experience that provoked an anger reaction (Owen, 2011; Wilkowski & Robinson, 2010). Anger has long been identified as an important clinical factor in PTSD, especially among military populations (Cassiello-Robbins & Barlow, 2016; Forbes et al., 2008; Gonzalez et al., 2016; Orth & Wieland, 2006). Further, longitudinal research has shown that trait anger predicts PTSD symptoms, which in turn exacerbate the experience of state anger, suggesting that dispositional anger creates a vulnerability towards developing and maintaining psychological distress (Meffert et al., 2008). Given that, as noted above, other-directed expressions of MI have been shown to mediate associations between PMIE exposure and psychopathology, it

is likely that trait-level anger would display similar effects for MI as it has for PTSD. Again, this question has not yet been addressed in the literature.

Design and Objectives of Study 2

In light of the above, the objectives of Study 2 were two-fold. The first objective was to evaluate the applicability of existing theories of the structure of MI derived from the occupational literature to moral stressors experienced during the COVID-19 pandemic. Specifically, we sought to examine whether moral appraisals of such stressors and reactions of guilt and anger mediate the relationship between exposure to COVID-19 related stressors and symptoms of depression and PTSD. The second objective was to examine how certain dispositional factors (i.e., religiosity, guilt and shame proneness, sense of duty, anger and anxiety sensitivity), predict moral appraisals of COVID-19 related stressful events.

CHAPTER 4: STUDY 2

Predictors of negative moral appraisals and their association with symptoms of post-traumatic stress and depression in the context of COVID-19 related stressors

Moral stressors are experiences that challenge an individuals' moral beliefs and expectations in such a way as to prompt psychological distress. The impact of such experiences on mental health has been well documented, with increasing attention being paid over the last decade to explicit harms that can be evoked by highly stressful moral transgressions, whether perpetrated by the self or witnessed in others (Griffin et al., 2019; Litz et al., 2009). In the emerging research on moral injury, a term used to describe the lasting and functionally impairing psychological consequences engendered by extreme moral stressors (e.g., potentially morally injurious events), exposure to such events has been linked to posttraumatic stress disorder (PTSD), depression, and suicidality, among other problems (Griffin et al., 2019). To date, the mental health impact of moral stressors has been mostly examined in the context of occupational stress injuries (i.e., highly stressful experiences an individual encounters while performing their job), and little is known regarding the mental health impact of moral stressors in the general population.

Moral stressors likely range along a continuum, from situations that challenge one's moral beliefs (e.g., being lied to by a trusted person) to events that deeply disrupt an individuals' sense of right and wrong, and shatter their understanding of their own and/or society's moral rules (e.g., exposure to the threat of genocide; Litz & Kerig, 2019). Events at the more extreme end of the spectrum have been most widely studied in the context of the military. Findings from this population suggest that events involving severe transgressions of moral values are associated most prominently with guilt, shame, and anger, spiritual struggles, and symptoms of depression, PTSD and anxiety (Griffin et al., 2019; Litz et al., 2018). Further, research suggests that different types

of morally stressful events may evoke different patterns of emotions and impairment. For instance, events that involve betrayal and witnessing immoral actions of others evoke high degrees of anger, while events involving transgressions perpetrated by the self are strongly associated with feelings of guilt (Jordan et al., 2017; Litz et al., 2018). The effects of moral emotions (e.g., guilt, anger) and appraisals (e.g., extent the individual interprets an act as transgressive) on mental health outcomes following a morally stressful event have only begun to be examined, with studies in the military context showing mediating effects of moral appraisals and emotions on the relationship between exposure to transgressions and PTSD, depression, and anxiety (e.g., Frazier et al., 2017; Jordan et al., 2017).

Outside the occupational context, little is known about the relationship between moral stressors and mental health outcomes. In this regard, the COVID-19 pandemic provides an opportunity to understand whether findings from occupational contexts can be observed in the general population. In addition to the increased incidence of everyday stressors for ordinary citizens (e.g., financial strain, changes to children's regimes), the context of the pandemic has provided a moral frame against which people are being asked to make everyday decisions. For example, public health messaging related to COVID-19 often uses highly moral language (e.g., "do the right thing," "protect your loved ones"), and those in positions of power have been forced to make decisions that may cause harm to others (e.g., risk of economic hardship, illnessMaclean's, 2020). Diversity of public opinion about following guidelines may also lead to moral stress, and mutations in the virus and the rapid dissemination of new evidence on the efficacy of public health measures has meant that regulations change frequently, adding to the moral ambiguity of everyday decisions.

To date, very little research has been conducted on factors that may predispose an individual to appraise stressors through a moral lens, potentially placing them at risk for the adverse mental health outcomes thus observed. One factor that may impact how individuals appraise a given situation is the sense of duty (e.g., “do the right thing”) they embody in the face of that event. Indeed, in the occupational context (i.e., military, health care), the sense of duty imbued in these professions is a factor theorized to account for vulnerability to moral distress (Corley, 2002; Litz et al., 2009). To our knowledge, however, such associations have yet to be empirically examined. Another predisposing factor may be one’s spirituality/religiosity. Given the spiritual nature of the distress prompted by morally stressful events, some researchers have examined whether a person’s degree of religiosity may influence their susceptibility to experiencing moral distress. Studies on this question, however, have yielded mixed results (Bremault-Phillips et al., 2019). In addition, while associations among trait-level emotions (e.g., dispositional anger, guilt and shame proneness) and beliefs about emotions (e.g., anxiety sensitivity) have been theorized to distinguish between moral injury and other constructs (Litz et al, 2009), to our knowledge no studies have yet examined these associations. For instance, theories of moral injury suggest that anxiety sensitivity (i.e., the belief that anxiety sensations are dangerous) may be most relevant to fear-based outcomes (e.g., PTSD), whereas proneness to moral emotions (e.g., anger, guilt and shame) may be most relevant to moral distress (Litz et al., 2009).

The objectives of the current study were to a) to evaluate the applicability of existing theories of moral injury derived from the occupational literature to moral stressors (i.e., events likely to prompt moral appraisals and distress) experienced during the COVID-19 pandemic and b) to explore how trait differences in sense of duty, religiosity, anxiety sensitivity, and guilt, shame, and anger, predict negative moral appraisals of COVID-19 related moral stressors. We

hypothesized that negative moral appraisals and reactions of guilt and anger would be associated with exposure to moral stressors and symptoms of depression and PTSD. We also predicted that higher sense of duty, religiosity, trait guilt, shame, and anger would predict negative moral appraisals, while anxiety sensitivity would have no relationship to negative moral appraisals.

Method

The study was approved by the University of Ottawa Research Ethics Board (H-04-20-5710) and was pre-registered with Open Science Framework (https://doi.org/10.17605/OSF.IO/HZA7P).

Participants

A total of 657 participants were recruited online via social media posts, a research recruitment website (i.e., www.honeybeehub.io), e-mails to researchers' contacts, and flyers in the community. Data was collected from April 2020 to April 2021. The final sample was 355 individuals, after excluding 302 participants[2]. See Supplementary table 1 for sample details.

Materials

To assess exposure to COVID-19 related moral stressors, we followed the format of the Life Events Checklist (Weathers, et al., 2013), a common measure of trauma exposure, and developed a list of 12 potential moral stressors (e.g., making decisions that could put other people out of work). Response categories include: happened to me, witnessed it, learned about it, part of my job, not sure, doesn't apply. Participants indicated which event had the most impact on their life, and how they experienced it. To assess moral appraisals, we administered the *Moral Injury Appraisals Scale* (MIAS; Hoffman et al., 2018), which has two subscales separating negative

[2]Reasons included: failing to correctly answer 2/3 attention check questions (n = 212); improbable completion time (< 5 minutes; n = 6); > 20% missing data on any of the variables of interest (n = 63); inconsistent responding; n = 3); and 18 were excluded based on metadata suggesting that the same person completed the survey multiple times – in the case where the participant's first entry was complete, the first response was retained and subsequent entries deleted.

moral appraisals of self and others. Symptoms of PTSD were assessed by the *Posttraumatic Stress Disorder Checklist for DSM-5* (PCL-5; (Weathers, Litz, et al., 2013), and symptoms of depression were assessed by the depression subscale of the *Depression, Anxiety and Stress Scale – 21* (DASS; Lovibond & Lovibond, 1995)**.** To assess guilt reactions to COVID-19 stressors, the 4-item global guilt subscale of the *Trauma-Related Guilt Inventory* (TRGI; Kubany et al., 1996) was used. For brevity and consistency, we developed an *anger inventory (AI)* based on the format of the TRGI which, using similarly worded questions, assessed reactions of anger. When responding to the MIAS, PCL-5, and the guilt and anger reactions scales, participants were asked to keep in mind their most impactful COVID-19 experience.

We measured four dispositional traits pertinent to the study of moral injury. For sense of duty, we asked participants to rate 3 statements assessing the degree to which they feel a sense of duty regarding the mitigation of COVID-19 on a scale from 0 (not at all agree) to 4 (very much agree). Religiosity/spirituality was assessed with the *Centrality of Religion Scale* (CRS; Huber & Huber, 2012), anxiety sensitivity with the *Short Scale Anxiety Sensitivity Index* (SSAS; Zvolensky et al., 2018), dispositional anger with the *Dimensions of Anger Reactions* (DAR; Novaco et al., 2012), and guilt and shame proneness with the *Guilt and Shame Proneness Scale* (GASP; Cohen et al., 2011). The GASP has two guilt subscales (negative behaviour evaluation (NBE) and repair), and two shame subscales (negative self-evaluation (NSE) and withdrawal).

Cronbach's alphas for all scales demonstrated acceptable reliability (αs > .77), with the exception of the GASP subscales (αs = .50-.69). Interitem correlations were within acceptable ranges for the NBE and NSE subscales, however the repair and withdraw subscales each yielded one correlation below the recommended .15 (Clark & Watson, 1995). Due to the novelty of our

research question, we opted to retain the scales in our study. Additional details on study measures and reliability is available in the supplemental materials.

Procedure

Participants accessed the study online (hosted by Qualtrics), reviewed the consent form and consented to participate before moving on to the survey. As compensation, participants were entered into a draw for one of four $50 gift cards.

Data Analysis

Analyses were conducted using AMOS and SPSS (version 28.0). Supplemental table 2 shows descriptive statistics and Pearson correlations. Missing values (< 0.05%) were imputed using expectation maximization. We used path analysis to assess associations between the number of COVID-19 moral stressors endorsed and symptoms of depression (DASS) and PTSD (PCL-5). Explanatory variables included moral appraisals (MIAS), and reactions of guilt (TRGI) and anger (AI). Estimates were computed using maximum likelihood estimation, and model fit was assessed following guidelines by Hu & Bentler (1999). Indirect associations and standard errors were computed using a bootstrap procedure drawn from 2000 samples. To assess our second objective we used multiple regression, including sense of duty, CRS, DAR, GASP, and SSASI as predictors and moral appraisals (MIAS) as the outcome variable.

Results

The most commonly endorsed index COVID-19 related stressor (i.e., that had the most impact on their life) was making decisions about social distancing. Additional details as to frequency of exposure to stressors is shown in Supplemental table 3.

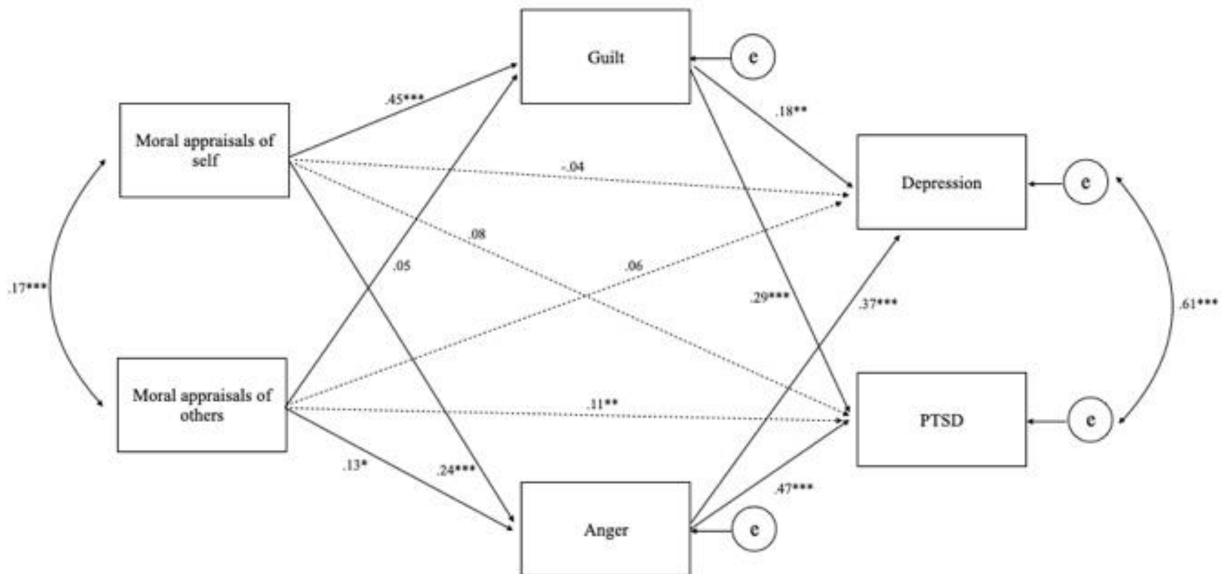
Objective 1: Moral Appraisals and Emotions in the Association Between COVID-19 Related Stressors and Mental Health Symptoms

The hypothesized path model yielded poor model fit on nearly all indices considered x^2 (3, 355) = 55.94, $p < .01$, .001; CFI = .91; TLI = .57; RMSEA = .22 (90% CI: .17–.28); SRMR = .08. The number of COVID-19 related stressors endorsed exerted no effect on any other variables considered in the model. Complete results for this model are found in the supplementary materials. Given these findings, we modified our analysis based on previous findings suggesting that the strength of associations among moral emotions and psychological outcomes differ for self- and other-based moral appraisals (Frazier et al., 2017; Jordan et al., 2017). Given its lack of association with the other variables, we removed number of COVID-19 experiences as a predictor in our revised model, and separately examined the influence of moral appraisals of oneself (MIAS-S) and moral appraisals of others (MIAS-O) on symptoms of depression (DASS) and PTSD (PCL-5). Guilt (TRGI) and anger (AI) reactions were included as potential explanatory variables. Once again, overall model fit poor, x^2(1, 355) = 55.62, $p < .01$, .001; CFI = .92; TLI = -.27; RMSEA = .39 (90% CI: .31–.48); SRMR = .08, however specific parameters and pathways yielded results worthy of interpretation. For both self-based (MIAS-S) and other-based moral appraisals (MIAS-O) indirect associations were observed for both depression and PTSD in the overall model, though the magnitude of these associations were stronger for the self-based moral appraisals (see Figure 1 and Supplemental table 4). After accounting for the explanatory variables considered, the only direct association that remained significant was that between other-based moral appraisals and PTSD (Figure 1). We also examined specific indirect associations of each explanatory variable. Guilt on its own was not an important explanatory factor in the association between other-based moral appraisals and PTSD or depression (both $p > .10$), whereas all other specific associations

were found to be meaningful. Detailed results are shown in Supplemental table 4. Together, findings demonstrate that while overall models lacked explanatory power, underlying associations among moral appraisals, guilt, anger, PTSD and depression were present in our data.

Figure 1

Path Analysis Demonstrating Associations Among Moral Appraisals of Self and Others, Guilt, Anger, Depression and PTSD



Note. Standardized regression weights shown. ***p* < .05, ****p*<.01, *****p* ≤ .001.**

Objective 2: Dispositional Characteristics in the Prediction of Negative Moral Appraisals of COVID-19 Stressors

Results of the multiple regression demonstrated that together the measures selected predicted total scores on the MIAS ($F(8) = 4.40$, $p<.001$, $R^2_{adj} = .07$), with sense of duty, GASP-Repair, and the SSASI emerging as meaningful individual predictors (see Table 1).

Discussion

The first objective of this study was to assess whether the associations among moral stressor exposure, moral emotions and symptoms of PTSD and depression previously observed in the occupational literature could be replicated in the context of COVID-19 related stressors in the general population. Overall fit for the path analyses was poor, however parameter estimates and specific associations examined revealed patterns similar to those observed in the military moral

Table 1

Moral Appraisals as Predicted by Sense of Duty, Trait Religiosity/Spirituality, Dispositional Anger, Guilt and Shame Proneness, and Anxiety Sensitivity

	β	SE	t	Partial r
Duty	.14	.18	2.63**	.14
CRS	.09	.07	1.67	.09
DAR	.06	.03	0.96	.05
GASP-NBE	-.11	.32	-1.73	-.09
GASP-Repair	.14	.40	2.36*	.13
GASP-NSE	.04	.38	.61	.03
GASP-Withdraw	.07	.30	1.18	.06
SSASI	.14	.08	2.28*	.12

Note: Moral appraisals measured by the MIAS. *$p < .05$; **$p < .01$.

injury literature (e.g., Jordan et al., 2017; Litz et al., 2018). For instance, reactions of guilt and anger appeared to demonstrate a modest explanatory effect in the association between moral appraisals and symptoms of PTSD and depression, emphasizing the role of these emotions in the relationship between moral stress and mental health outcomes. Further, specific associations examined showed that anger had an important influence on the relationship between moral appraisals related to self and other, and symptoms of both PTSD and depression. Guilt, on the other hand, influenced the associations among moral appraisals of self and PTSD and depression,

but did not influence the associations between moral appraisals of others and these outcomes. Findings support existing theories which emphasize the differential roles that guilt and anger may play in the aftermath of self- vs. other-based transgressions (e.g., Litz et al., 2018), though additional research is needed to examine nuances in these associations (e.g., the role of self-directed vs. other-directed anger). Indeed, given poor overall model fit for our analyses, it is likely that the inclusion of additional variables not considered here would provide more explanatory power as to associations of interest.

Interestingly, the variety of exposure to COVID-19 related stressors was not associated with any of our variables of interest. While research on general life stressors (e.g., work stress, health problems) has suggested that the greater an individual's exposure to different life stressors, the more well-being is impacted (Law et al., 2020), it may be that our "count" approach to measuring exposure to moral stressors was not appropriate here. It is likely that in the case of moral stressors, how these stressors are appraised may be more relevant with regards to moral distress (Litz et al., 2009). Indeed, the results of our path analyses supports this hypothesis. Previous research on high-stakes potentially morally injurious events (e.g., killing in combat, sexual assault) tend to focus on experiences for which the moral appraisal of the event may be obvious or difficult to escape. For potential moral stressors falling at the less severe end of the spectrum, it may be that the relative impact of moral appraisals (and other factors not assessed in our models) is easier to separate from the experience itself. This highlights the need for additional studies aimed at understanding the relative influence of negative moral appraisals and different qualities of moral stressors (e.g., single vs. chronic events, self-relevance of event).

Our second objective was to examine the influence of various dispositional traits on negative moral appraisals of COVID-19 related stressors. We observed that sense of duty, anxiety

sensitivity and guilt-based repair intentions (repair subscale of the GASP) were associated with negative moral appraisals, whereas dispositional anger, shame proneness (GASP-NSE and withdrawal), and negative evaluation of one's own behaviours (GASP-NBE) were not associated with negative moral appraisals. To our knowledge, our study is the first to directly examine the associations among sense of duty and moral appraisals, and findings support the hypothesis that a strong sense of moral responsibility towards a cause influences the strength of negative moral appraisals (Corley, 2002; Litz et al., 2009). Further, our finding that religiosity/spirituality was not associated with moral appraisals was interesting, suggesting perhaps that this factor is less relevant at the lower end of the moral stressors continuum, where the quality of events may be less likely to prompt the deep religious/spiritual disruption characteristic of moral injury. Again, findings on religiosity/spirituality in the context of high-stakes occupational stressors has been mixed (Bremault-Phillips et al., 2019), and additional research is surely needed to clarify its role.

Regarding guilt and shame proneness, subscales of the GASP describe a behavioural (repair and withdrawal) and evaluative (NBE and NSE) component to both guilt and shame. We found that only the repair facet of guilt was associated with negative moral appraisals. One possible explanation for these findings is that, at least at the lower end of the moral stressors continuum, it may be that one's sense of their own and others' control over actions deemed morally transgressive (e.g., wearing a mask, physical distancing) is more upsetting than the belief that the people who conduct such actions are inherently "immoral." Indeed, shame is considered to be the internalization of such beliefs towards oneself, whereas guilt focuses on the impact of specific behaviours (Tangney et al., 1992), a distinction that has been at the center of debates regarding the core phenomenology of moral injury (Litz et al., 2009). Future research should examine these

relationships further, as our findings should be interpreted with caution given the poor reliability of the behavioural (repair and withdrawal) subscales.

Lastly, regarding anxiety sensitivity, Litz and colleagues (2009) hypothesized that this trait may be less related to moral distress compared to other problems. Our results did not support this finding, but rather demonstrated that anxiety sensitivity predicts negative moral appraisals. This suggest that perhaps the fear of negative emotional sensations may arise in response to threats to one's moral values and influence moral appraisals. It may also be, however, that factors not controlled for here (e.g., health anxiety related to COVID-19) may also explain the association observed. Additional research on the association between anxiety sensitivity and moral appraisals is therefore needed to better understand how these factors are associated with psychopathology.

Additional limitations to this study are worth noting. First, as the pandemic has evolved, the nature of potential moral stressors and their impact has changed. For example, when data was first collected, COVID-19 vaccines were not yet widely available. Debates around the availability, emergency use and mandates surrounding vaccination have been contentious in Canada (House of Commons of Canada, 2022), and these issues are likely to be morally stressful for some. In addition, the pandemic has exacerbated existing morally-laden realities of our society, such as income inequality and occurrence of racial discrimination, including an increased incidence of hate crimes (Elgar et al., 2020; Gray & Hansen, 2021). Our study is unable to provide comment on the impact of such experiences, germane as they are to moral distress in the pandemic context. Second, we did not assess or control for general life stressors or traumatic events. Future studies should include such variables to examine the relative impact of moral appraisals on different types of stressors. Lastly, our analyses focused on previously established adverse outcomes associated

with potentially morally injurious events, however it is likely that variables not examined here, such as coping and social support, may play a yet unknown role in the associations examined.

Conclusion

This is one of the first studies to examine associations among negative moral appraisals, moral emotions and mental health outcomes outside the occupational context. It is also the first to examine dispositional factors associated with moral appraisals that may relate to subsequent distress. While results should be interpreted with caution given poor overall model fit, the patterns we observed among moral appraisals and mental health outcomes in the general population are similar to those previously demonstrated in high-stakes occupational settings. Most notably, findings support previous theories on the particular role guilt plays in the association between self-compared with other-based transgressive experiences and mental health symptoms, and the influence of one's sense of duty on moral appraisals of stressful events.

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Supplemental Material

Supplemental Table 1

Full Sample Characteristics

	n (%)	*M (SD)*
Age		34.52 (14.3)
Gender		
Man	91 (25.6)	
Woman	259 (73.0)	
Transman	2 (0.6)	
Transwoman	0 (0.0)	
Other[a]	3 (0.8)	
Employment status		
Full-time	148 (41.7)	
Part-time	33 (9.3)	
Not regular employment (e.g., freelance, contract)	25 (7.0)	
Unemployment	43 (12.1)	
Retired	23 (6.5)	
Student	81 (22.8)	
Prefer not to answer	2 (0.6)	
Race		
Indigenous/First Nations	10 (2.8)	
Arab/West Asian	5 (1.4)	
Black	8 (2.3)	
Chinese	37 (10.4)	
Filipino	6 (1.7)	
Japanese	1 (0.3)	
Korean	2 (0.6)	
Latin American	11 (3.1)	
South Asian	10 (2.8)	
South East Asian	7 (2.0)	
White (Caucasian)	242 (68.2)	
Other	10 (2.8)	
Prefer not to answer	6 (1.7)	
Education		
High school or less	96 (27.0)	
Completed college or trade school	37 (10.4)	
Completed university	141 (39.7)	
Graduate certificate or higher	81 (22.8)	

Note: Age range 18-86; [a]Genderfluid (n = 1), non-binary (n = 1), agender (n = 1); [b]Missing = 1

Supplemental Table 2

Means, Standard Deviations, and Bivariate Correlations

	M (SD)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. # COVID-19 stressors	9.00 (3.14)	—															
2. MIAS (total)	20.33 (6.20)	-.00	—														
3. MIAS-Self	8.47 (4.69)	.02	.85***	—													
4. MIAS-Other	11.85 (3.35)	-.03	.67***	.17***	—												
5. TRGI	0.88 (0.94)	-.01	.42***	.46***	.13*	—											
6. AI	1.10 (0.98)	.04	.29***	.26***	.17**	.45***	—										
7. PCL-5	24.27 (19.05)	-.01	.38***	.34***	.23***	.53***	.61***	—									
8. DASS-Depression	14.83 (11.45)	-.02	.18***	.15**	.13*	.33***	.44***	.71***	—								
9. Duty	11.05 (1.94)	.08	.13*	-.03	.28***	-.07	-.18***	-.13*	-.09	—							
10. CRS	7.31 (5.12)	-.02	.10	.11*	.03	.11*	.14**	.12*	-.03	-.11*	—						
11. DAR	19.50 (11.93)	-.01	.11*	.08	.09	.25***	.40***	.43***	.33***	-.15**	.05	—					
12. GASP-NBE	5.52 (1.27)	-.06	.02	-.09	.15**	-.07	-.13*	-.12*	-.17**	.21***	.21***	-.15**	—				
13. GASP-Repair	5.74 (0.97)	-.04	.16**	.02	.26***	-.06	-.10	-.05	-.07	.25***	.11*	-.14**	.47***	—			
14. GASP-NSE	5.89 (1.01)	.-09	.09	-.01	.18***	-.00	-.04	.03	.02	.18***	.00	-.03	.48***	.41***	—		
15. GASP-Withdrawal	3.01 (1.15)	-.07	.11*	.09	.09	.18***	.20***	.31***	.23***	-.16**	.15**	.26***	.06	.03	.07	—	
16. SSASI	6.90 (4.70)	-.05	.20***	.15**	.16**	.31***	.32***	.52***	.43***	-.03	.14**	.41***	-.01	.06	.14**	.32***	—

Note: $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$.

Supplemental Table 3

Moral Stressor Exposure (n, %)

	Happened to me	Witnessed it	Learned about	Job related	Media	Doesn't apply	Selected as index event
1. Making decisions about whether or not to social distance	297 (83.7)	212 (59.7)	211 (59.4)	107 (30.1)	231 (65.1)	10 (2.8)	170 (47.9)
2. Making decisions related to COVID-19 that could put other people out of work	58 (16.3)	119 (33.5)	120 (33.8)	48 (13.5)	197 (55.5)	92 (25.9)	10 (2.8)
3. Making decisions that could put people at risk of getting sick or dying (e.g., making important medical decisions, asking employees to work despite risk of exposure to COVID-19)	75 (21.1)	130 (36.6)	139 (39.2)	61 (17.2)	193 (54.4)	81 (22.8)	22 (6.2)
4. Making COVID-19 related public policy decisions that could impact the health or well-being of many people	34 (9.6)	65 (18.3)	101 (28.5)	36 (10.1)	220 (62.0)	99 (27.9)	13 (3.7)
5. Making COVID-19 related public policy decisions that could have major negative impacts on the economy	20 (5.6)	70 (19.7)	100 (28.2)	21 (5.9)	242 (68.2)	90 (25.4)	5 (1.4)
6. Making decisions about whether or not to self-isolate after returning from abroad	56 (15.8)	136 (38.3)	133 (37.5)	16 (4.5)	184 (51.8)	88 (24.8)	13 (3.7)
7. Making important medical decisions because of COVID-19 that could put people at risk of getting sick or dying	38 (10.7)	55 (15.5)	95 (26.8)	23 (6.5)	197 (55.5)	114 (32.1)	11 (3.1)
8. Making decisions about how much essential supplies, such as disinfectant products, gloves, or masks, that people should buy	109 (30.7)	119 (33.5)	117 (33.0)	33 (9.3)	211 (59.4)	76 (21.4)	9 (2.5)
9. Had an important medical treatment postponed because of COVID-19	59 (16.6)	97 (27.3)	91 (25.6)	10 (2.8)	116 (32.7)	151 (42.5)	19 (5.4)
10. Have been unemployed as a result of COVID-19	87 (24.5)	178 (50.1)	140 (39.4)	30 (8.5)	172 (48.5)	116 (32.7)	56 (15.8)

11. Making decisions about whether or not to self-isolate because of flu-like symptoms	115 (32.4)	139 (39.2)	126 (35.5)	28 (7.9)	150 (42.3)	98 (27.6)	14 (3.9)
12. Have not had access to lifesaving medical devises (e.g., ventilator)	8 (2.3)	21 (5.9)	48 (13.5)	8 (2.3)	152 (42.8)	182 (51.3)	4 (2.5)

Note: Index missing = 9 (2.5)

Supplemental Table 4

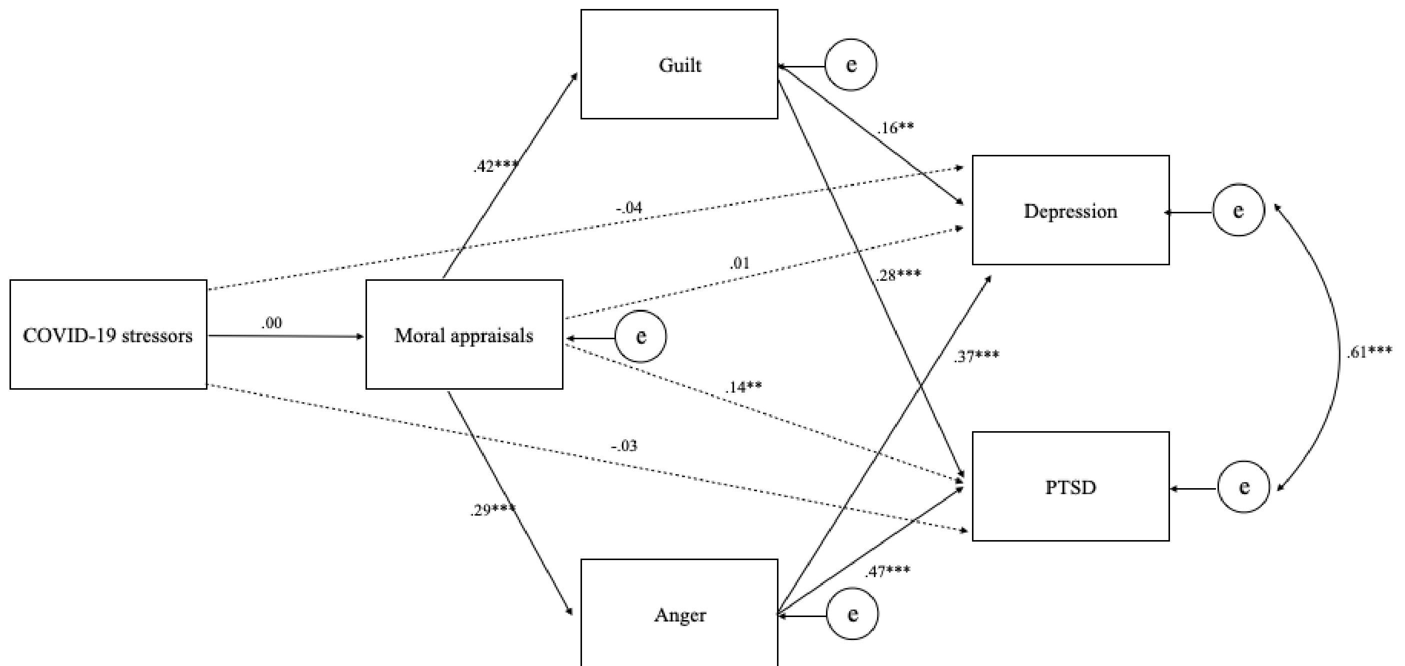
Total, Direct, and Indirect Associations for Path Analyses Tested (Registered and Revised Models)

	Direct effects		Indirect effects		Total effects	
	β	SE	*β*	SE	*β*	SE
Original model (Supplemental Fig. 1)						
COVID-19 stressors → Depression[a]	**-.04**	**.06**	**.00**	**.01**	**-.04**	**.06**
COVID-19 stressors → PTSD[a]	**-.03**	**.05**	**.00**	**.02**	**-.03**	**.05**
Moral appraisals → Depression[a]	**.01**	**.06**	**.17*** **	**.03**	**.19** **	**.06**
Moral appraisals → PTSD[a]	**.14** **	**.05**	**.25*** **	**.04**	**.39*** **	**.05**
Revised model (see report)						
Moral appraisals-Other → Depression[a]	**.06**	**.05**	**.06***	**.03**	**.11***	**.05**
Moral appraisals-Other → PTSD[a]	**.11** **	**.04**	**.07***	**.03**	**.19** **	**.06**
Moral appraisals-Self → Depression[a]	**-.04**	**.06**	**.17*** **	**.03**	**.13***	**.06**
Moral appraisals-Self → PTSD[a]	**.08**	**.05**	**.24*** **	**.04**	**.32*** **	**.05**
Specific effects			B[b]	SE		
Moral appraisals-Other → Guilt → Depression			**.03**	**.03**		
Moral appraisals-Other → Guilt → PTSD			**.08**	**.08**		
Moral appraisals-Self → Guilt → Depression			**.19** **	**.07**		
Moral appraisals-Self → Guilt → PTSD			**.52*** **	**.12**		
Moral appraisals-Other → Anger → Depression			**.15***	**.07**		
Moral appraisals-Other → Anger → PTSD			**.32***	**.15**		
Moral appraisals-Self → Anger → Depression			**.21*** **	**.06**		
Moral appraisals-Self → Anger → PTSD			**.44*** **	**.11**		

Note: [a]Explanatory variables tested include guilt (TRGI) and anger (AI) reactions to COVID-19 related stressors. [b]Unstandardized weights. Moral appraisals measured by the MIAS. COVID-19 stressors refers to number of stressors endorsed. $^{*}p < .05$, $^{**}p < .01$, $^{***}p \leq .001$.

Supplemental Figure 1

Path Analysis Demonstrating Associations Among COVID-19 Related Stressor Exposure, Moral Appraisals, Guilt, Anger, Depression and PTSD



Note: Standardized regression weights shown. *p < .05, **p<.01, ***p ≤ .001.

Full Details of Study Measures

COVID-19 Duty Scale

Participants were asked to rate three statements regarding the degree to which they hold a sense of duty to help prevent the spread of COVID-19: *It is our collective duty to take action to reduce the impact of COVID-19; It is my duty to follow rules set by the government related to COVID-19; It is my duty to follow rules set by public health officials related to COVID-19*, on a Likert scale from 0 (not at all agree) to 4 (very much agree). Cronbach's alpha for this scale was .89.

COVID-19 Moral Stressors Scale

Based on the format of the Life Events Checklist (Weathers, et al., 2013), a common measure of trauma exposure, we developed a series of potential moral stressors related to the context of the COVID-19 pandemic. Response categories include: happened to me, witnessed it, learned about it, part of my job, not sure, doesn't apply. Participants were also asked to indicate which event has had the most impact on their life, and how they experienced it.

Centrality of Religion Scale

The Centrality of Religion Scale (CRS; Huber & Huber, 2012) is a 5-item measure assessing the centrality and importance of religiosity/spirituality. Items are rated on a Likert scale from 0 (never) to 4 (very often; sample α = .90). We adapted the CRS to include language that is more inclusive to spiritual experiences and practices beyond those observed by traditional religions.

The Short Scale Anxiety Sensitivity Index

The Short Scale Anxiety Sensitivity Index (SSASI; Zvolensky et al., 2018) is a 5-item measure of anxiety sensitivity, defined as an individual's fear of anxiety and arousal-related sensations. Items are rated on a 5-point Likert scale from 0 (very little) to 4 (very much; sample α = 77).

The Guilt and Shame Proneness Scale

The Guilt and Shame Proneness Scale (GASP; Cohen et al., 2011) is a 16-item measure of an individual's dispositional tendency to experience guilt or shame, divided into two guilt subscales (negative behaviour evaluation (NBE) and repair), and two shame subscales (negative self-evaluation (NSE) and withdrawal). Each item details a short scenario (e.g., being given excess change at a retail store) to which individual's identify the degree to which they believe they would

react with feelings of shame or guilt on a 7-point Likert scale from 1 (very unlikely) to 7 (very likely). Cronbach's alpha for the subscales ranged from .50-.69. We examined interitem correlations which proved to be within acceptable ranges for the NBE and NSE subscales, with the repair and withdraw subscales each yielding one correlation below the recommended .15 (Clark & Watson, 1995). Due to the novelty of our research question, we opted to retain the scales in our study, however results should be interpreted with caution.

Dimensions of Anger Reactions

The Dimensions of Anger Reactions scale (DAR; Novaco et al., 2012) is a 7-item measure of an individual's dispositional level of anger, assessed along the following dimensions: frequency, intensity, duration, antagonism, and impact on work, social relationships, and health. Items are rated on a scale from 0 (not at all) to 8 (exactly so; sample $\alpha = .87$).

Moral Injury Appraisals Scale

The Moral Injury Appraisals Scale (MIAS; Hoffman et al., 2018) was used to examine individual's moral appraisals of their most impactful COVID-19 stressor. Nine items are rated on a 5-point Likert scale from 1 (not at all) to 4 (very much). The scale contains two subscales separating distress arising from the moral transgressions of others and own's own moral transgressions (sample αs .88 and .94, respectively). Cronbach's alpha for the total scale was .85. Participants were prompted to reflect on their most impactful COVID-19 related experience while completing the scale, with higher scores indicating higher degree moral difficulties with the experience.

Posttraumatic Stress Disorder Checklist for DSM-5

The Posttraumatic Stress Disorder Checklist for DSM-5 (PCL-5; (Weathers, Litz, et al., 2013) is a 20- item measure of PTSD symptoms. Participants are asked to rate the extent to

which a number of problems bothered them over the last month on a 5-point scale ranging from 0 (not at all) to 4 (extremely). Participants were prompted to reflect on their most impactful COVID-19 related experience while completing the scale. Cronbach's alpha for this scale was .96 in this sample.

Depression, Anxiety and Stress Scale – 21

The depression subscale of the Depression, Anxiety and Stress Scale – 21(DASS; Lovibond & Lovibond, 1995) assesses symptoms of depression over the previous two weeks. The sub-scale contains 7 items rated on a scale from 0 (did not apply to me) to 3 (applied to me very much). Scores are then multiplied by 2, with total scores below 9 representing no distress, scores from 9-13 representing mild distress, scores from 14-20 representing moderate distress, and scores above 21 representing severe distress (sample $\alpha = .92$).

Trauma-Related Guilt Inventory

The 4-item global guilt subscale of the Trauma-Related Guilt Inventory (TRGI; Kubany et al., 1996) assesses reactions of guilt in response to a traumatic event. Participants were asked to respond based upon their most impactful COVID-19 experience. Items rated on a 5-point Likert scale ranging from 0 (always true) to 4 (never true; sample $\alpha = .94$).

Anger Inventory

A series of 4 questions were developed for this study, based on the format of the TRGI, to assess reactions of anger related to their most impactful COVID-19 related experience (sample $\alpha = .94$).

CHAPTER 5: GENERAL DISCUSSION

The two studies conducted as part of my doctoral research program come together to support the validity of the MI construct while extending existing findings in a number of important ways. First, in Study 1, patterns of distress characteristic of MI were observed in our Canadian Armed Forces (CAF) sample of service members and Veterans, supporting the generalizability of the construct to this population. The themes identified as part of the thematic analysis not only fit with existing descriptions of MI, but add to these findings by highlighting the importance of cognitive features of distress yet to be discussed at length in the MI literature. These include changes in core beliefs about the nature of the moral world (as expressed by rigid, disillusioned and confused moral attitudes), as well as an increased sensitivity and reactivity to moral situations. Interestingly, a negative association between combat exposure and PMIE exposure was observed in this study, and after controlling for this variable PTSD symptoms were found to be most strongly associated to PMIE exposure in our model, which included symptoms of depression, anger and guilt. This study was also the first to provide detailed clinical information (e.g., diagnosis, medication, psychiatric history) about individuals seeking relief from distress engendered by PMIEs.

In Study 2, structural equation models demonstrated poor overall fit, indicating that there were likely other factors not examined which would have provided additional explanatory power in the associations examined. Still, specific path coefficients showed a similar influence of moral emotions on the association between moral appraisals and mental health symptoms to those observed in the military context. While preliminary in nature, these findings suggest that the MI construct may indeed generalize beyond the occupational context, applying also to lower-impact moral stressors experienced by the general population during the COVID-19 pandemic. Further,

this study was the first to examine dispositional characteristics that may be associated with negative moral appraisals, demonstrating that sense of duty, reparative guilt, and anxiety sensitivity best predicted negative moral appraisals. The details of these findings with regards to their fit within exiting literature and the implications of these for research and practice are described in the following sections.

Conceptualizing MI

The features of MI identified and examined in Studies 1 and 2 can be divided into three main categories. These are existential features, cognitive/emotional features and social features of MI. The relevance of each of these features to current MI theory is the focus of this section.

Existential Factors

Existential consequences of PMIEs represent those associated with one's understanding of oneself and one's place in the world, and can be characterized most notably by disruptions in identity and spirituality.

Identity. The thematic analysis conducted for Study 1 identified disruptions in identity which included a devalued sense of self and dissonance regarding one's sense of identity and values in the aftermath of PMIEs. Importantly, the identification of these themes lends support to a foundational notion in MI theory, namely that PMIEs have the capacity to prompt a re-evaluation of one's sense of self, and that failed attempts to reconcile this process leads to distress. Indeed, the characterological model of MI described by Atuel and colleagues (2021) purports that moral virtues are foundational to identity, and when violated by a PMIE prompt conflict between one's "real self" and one's "ideal self." The questions engendered by this conflict are by their nature existential, as they are characterized by attempts to evaluate the virtues that define their identity in light of the PMIE (e.g., "Who am I in the aftermath of this moral failure?" Atuel et al., 2021).

Expressions of identity conflict in our study were similar to those observed in other qualitative examinations of MI in military samples (Held, Klassen, Hall, et al., 2018; Sullivan & Starnino, 2019), whereby participants struggling with MI expressed for example that they do not like the person they have become, that they view themselves as “a monster.” Of note, identity struggles have long been associated with mental health problems in the context of trauma, and it is yet unclear the extent to which identity disruptions in the aftermath of PMIEs may be unique. For instance, research among survivors of sexual violence has shown that individuals who perceive themselves as “victims” in the aftermath of trauma tend to have worse mental health outcomes (Boyle, 2017). Research in military populations has demonstrated that identity conflicts in the transition from military to civilian life also prompt distress (Brenner et al., 2015; Brewin et al., 2011; Farnsworth et al., 2014; Orazem et al., 2016; Stander et al., 2014). Further, individuals experiencing clinically significant mental health problems in the aftermath of traumatic events often report distress pertaining to a devalued view of self due to their diagnosis and resulting loss of functioning (i.e., self-stigmatization; Corrigan & Watson, 2002; Deitz et al., 2015; Desai et al., 2016). What remains to be elucidated, then, is the extent to which identity disruptions in the context of PMIEs elicit distress that is qualitatively different from identity changes observed in the trauma literature thus far (e.g., in the context of PTSD), as these may have important implications for case conceptualization and treatment.

Spirituality/Religiosity. With regards to spirituality, difficulties associated with understanding one’s values and purpose in the aftermath of PMIEs is similarly understood to be a central feature of MI (Antal & Winings, 2015; Brock & Lettini, 2012; Drescher & Foy, 2008; Griffin et al., 2019; Kinghorn, 2012; Shay, 2014). Both qualitative and quantitative studies have demonstrated that PMIEs have the capacity to prompt doubt in religious and spiritual beliefs,

questioning of values previously held as important, and feelings of aimlessness or loss of purpose that are difficult to manage (Currier et al., 2017; Currier, Holland, & Malott, 2015; Drescher et al., 2011; Evans et al., 2018; Held, Klassen, Hall, et al., 2018; Purcell et al., 2016; Stein et al., 2012; Williamson et al., 2020). Adding to the validity of existing findings, these features of MI were also identified in the thematic analysis conducted in Study 1, whereby participants expressed uncertainty and confusion about their spiritual or religious beliefs and/or a loss of faith, purpose or meaning once held as central to their personal value.

While prevailing theories of MI maintain that the inability to resolve existential issues prompted by PMIEs is central to the maintenance of distress and impairment (Atuel et al., 2020; Brock & Lettini, 2012; Farnsworth et al., 2017; Litz et al., 2009), this claim has only begun to be examined quantitatively. For instance, a study conducted by Currier and colleagues (2015) used structural equation modeling to demonstrate that difficulties with meaning-making mediated the association between MI and mental health symptoms (PTSD, depression and suicidality) among US Veterans returning from conflicts in Iraq and Afghanistan. Another study by Evans and colleagues (2018) demonstrated similar results, showing that greater PMIE exposure was associated with more prominent religious/spiritual struggles, and that this latter variable fully mediated the association between PMIE exposure and symptoms of PTSD and anxiety. These studies appear to confirm predictions made by models of MI, however another study conducted by Currier and colleagues (2019) which examined a broad range of MI-related distress variables offers some additional insights worthy of consideration. Results from their latent profile analysis revealed two distinct groups of distressed war zone Veterans, one representing “psychological MI,” characterized by interpersonal, moral and meaning-making struggles as well as self- and other-directed expressions of MI, and one representing “spiritual MI,” characterized by struggles with

one's relationship to the divine and doubting previously held beliefs, in addition to the problems observed in the psychological group. Further, it was observed that those in the spiritual MI group exhibited more distress than the psychological MI group. Thus, while spiritual difficulties do appear central to conceptualizations of MI, distinct forms of spiritual struggles (i.e., the importance one places on their relationship with the divine) may present additional vulnerabilities. Of note, studies examining MI and spiritual struggles have yet to be systematically conducted outside of the military context.

In contrast, the importance of spirituality/religiosity to moral distress was not apparent in Study 2. We had hypothesized that dispositional religiosity/spirituality would be positively associated with negative moral appraisals, however this prediction was not supported. There are several possible explanations for this finding. First, it may indeed be that religiosity/spirituality is not an important predictor of moral appraisals. Indeed, there are studies that have similarly failed to show associations between religiosity/spirituality and MI (see review by (Bremault-Phillips et al., 2019). More research is need, however, as to my knowledge the connection between moral *appraisals* and religiosity/spirituality has not been extensively examined. Second, given the mixed state of the evidence examining this relationship, it may be that religious/spiritual centrality represents a risk factor for a specific pattern of MI distress. Indeed, the Currier and colleagues (2019) study described above found that pre-military religiosity/spirituality (assessed by retrospective self-report) was positively associated with membership in the spiritual MI group but not the psychological MI group. Therefore, studies assessing religiosity/spirituality and moral distress more generally (such as Study 2) may have missed this nuanced association. Third, the majority of studies conducted so far have focused on testing associations among dispositional religiosity/spirituality in the context of mental health problems (i.e., in military samples of

individuals who were treatment-seeking and/or at risk for psychological problems; Currier, Foster, et al., 2019; Richardson et al., 2021; Yan, 2016). Our analysis was conducted among the general population, however, which tends to have a lower prevalence of mental health problems than the military (e.g., Zamorski et al., 2016). Furthermore, the types of moral stressors assessed by Study 2 can be understood to be of lower magnitude compared to PMIEs that occur in the military context (e.g., war zone events, military sexual assault; Litz & Kerig, 2019). Indeed, military PMIEs as defined in the literature tend to be higher-stakes and more so blended with traumatic events than those assessed in Study 2. It may therefore be that an interaction exists among PMIE quality (e.g., intensity) and religious/spiritual centrality in predicting MI. To my knowledge, this has not yet been examined, and future studies are needed to test this hypothesis.

Fourth, the association tested in Study 2 was between religious/spiritual centrality and negative moral *appraisals*, rather than psychological/spiritual distress *resulting from* those appraisals. One hypothesis for why psycho-spiritual distress may occur without association with dispositional religiosity/spirituality is that, as noted above, there may exist specific qualities of PMIEs that are morally disturbing enough to prompt MI distress regardless of an individual's dispositional religiosity/spirituality (i.e., qualities that tap into core human values outside the domain of specific religious/spiritual beliefs, for example killing). It may also be that other factors not yet examined, such as interpersonal attachment style and other personality factors play a stronger role in influencing moral appraisals than religious/spiritual centrality.

Finally, it may be that *rigidity* in one's dispositional religious/spiritual beliefs is what is most associated with negative moral appraisals, rather than the centrality of the beliefs to the individual. Indeed, the model of MI proposed by Litz and colleagues (2009) maintains that internalization of a rigid moral code (such as that indoctrinated by the military, but which can also

be indoctrinated by religious institutions) may make a person vulnerable to experiencing MI. Moreover, research on cognitive factors associated with psychopathology have long established psychological rigidity as a risk factor for mental health problems (Beck, 1967; Ciarrochi et al., 2005; Morris & Mansell, 2018). Supporting this hypothesis is one study which examined trait perfectionism (a particular type of rigid belief) in the context of moral stressors experienced by veterinary professionals (Crane et al., 2015), which found that perfectionism increased the strength of the relationship between perceived moral significance of stressors and psychological distress. Additional studies examining rigidity of religious/spiritual beliefs in the context of MI are therefore needed to understand if similar mechanisms apply.

One major limitation to be noted is that no longitudinal studies have yet been conducted which examine the association between dispositional religiosity/spirituality and MI. This is important given that the salience of religious beliefs have been shown to predict psychological difficulties longitudinally in civilian samples (Wilt et al., 2017). Moreover, longitudinal studies are necessary to properly tease apart the true impact of PMIEs (including qualities of events). For example, while qualitative results from Study 1 and others (Held, Klassen, Hall, et al., 2018; Purcell et al., 2016; Williamson et al., 2020) do suggest that PMIEs are an important catalyst for the existential features of distress characteristic of MI (e.g., as evidenced by participants' narratives expressing feelings of being "changed" and beliefs being "shattered"), statistically controlling for baseline features of existential beliefs and struggles may help us better understand the exact nature of the distress prompted by PMIEs.

Cognitive and Emotional Factors

Results from Study 1 and 2 also provide supporting evidence for the validity of the core emotional and cognitive features of MI.

Rumination. First, qualitative findings from Study 1 showed that participants experiencing distress from PMIEs demonstrated a preoccupation with their PMIE(s), or rumination characterized by attempts at reconciling the dissonance prompted by their experiences. This finding concurs with previous evidence identifying rumination as a prominent feature of distress prompted by PMIEs (Bravo et al., 2020; Hamrick et al., 2020; Held, Klassen, Hall, et al., 2018; Roth, Qureshi, et al., 2022; Williamson et al., 2019), and theories of MI which purport that rumination likely plays a role in maintaining MI-related distress (Litz et al., 2009). Indeed, rumination has been found to be a key feature of distress for a range of psychological problems, including depression, anxiety, and PTSD (Elwood et al., 2009; Mellings & Alden, 2000; Orth et al., 2006; Spasojević & Alloy, 2001; Zetsche et al., 2009). For PTSD, rumination is understood to present a particular cognitive vulnerability for this disorder, in that the act of rumination on the traumatic event and its consequences perpetuates a sense of ongoing threat which maintains psychological distress (Ehlers & Clark, 2000; Elwood et al., 2009). With regards to MI, rumination may very well enact a similar function with regards to the maintenance of distress, though these mechanisms are still being elucidated. In the context of military PMIEs, a number of studies have now been conducted which demonstrate that rumination mediates the relationship between MI and mental health problems, including anxiety, PTSD, depression, suicidality and problematic alcohol use (Bravo et al., 2020; Hamrick et al., 2020; Kelley, Bravo, et al., 2019). In general, rumination appears to mediate this association for both self- and other-directed expressions of MI however these associations appear more pronounced for self-directed MI (Bravo et al., 2020).

Further insights into the mechanisms at play in these associations may be offered by findings such as those by Orth and colleagues (2006), who demonstrated that shame precipitated by a specific event (in this study, a family breakup due to marital separation) elicits rumination,

which in turn mediates the association between shame and depression. This suggests that shame and rumination can be understood to exact a reciprocal effect in maintaining depression. This effect was also observed in a study by Joireman (2004), who found that rumination mediated the relationship between shame and personal distress, and that shame also mediated the relationship between rumination and personal distress. If similar processes are at work in MI, this is not altogether different than the role of rumination described by the cognitive model of PTSD, in that rumination regarding one's sense of unworthiness (manifested by shame) may produce a sense of ongoing threat to identity and purpose, with attempts to resolve this dissonance then being perpetuated by the act of rumination. Indeed, a correlational study by Harman & Lee (2010) showed that individuals with PTSD who reported higher levels of shame engaged in more self-critical thinking, findings that in part support this hypothesis. This notion fits with models of MI which highlight that ongoing attempts to resolve moral pain (e.g., shame) are core to the maintenance of distress in the aftermath of PMIEs (Farnsworth et al., 2017; Frankfurt & Frazier, 2016). Again, whether these hypothesized mechanisms are distinct in the context of PMIEs compared to other psychological stressors and problems still requires further investigation.

Sense of Duty. Our research was the first to specifically examine the influence of sense of duty on moral appraisals and, as expected, a positive association was observed in Study 2. This lends preliminary support to the claim made by MI theorists that a strong sense of moral responsibility may create a vulnerability towards experiencing MI. Given that we did not specifically examine sense of duty as a predictor for distress, however, additional research is needed to replicate and extend our findings. To my knowledge, only one study has so far been conducted which addresses a concept similar to sense of duty in the context MI. In a sample of US military Veterans, Forkus & Weiss (2021) examined the role of different types of moral

foundations in relation to PMIE exposure and clinical distress. Moral foundations reflect a set of psychological foundations for morally motivated behaviour, which are understood to be evolutionarily adaptive (e.g., to care for others means that I increase my likelihood of being cared for if I need it; Graham et al., 2009; Haidt, 2007, 2008; Haidt & Graham, 2007; Haidt & Joseph, 2004). These moral foundations can be separated into two categories: those involving individualizing functions (i.e., those that serve to preserve the individual, such as fairness and reciprocity) and those involving binding functions (i.e., those that serve to preserve the group, such as loyalty and authority). The researchers observed that only binding moral foundations were associated with both PMIE exposure and PTSD symptoms, and that PMIE exposure (as measured by the Moral Injury Events Scale; MIES) mediated the association between binding foundations and PTSD symptoms. The authors therefore suggest that strong beliefs about moral responsibility towards the group may present a vulnerability towards experiencing MI. Importantly, our measure of sense of duty encompassed statements pertaining to both one's own personal responsibility (i.e., "it is my duty to follow rules set by public health officials related to COVID-19") and to a sense of collective responsibility (i.e., "it is our collective duty to take action to reduce the impact of COVID-19"). In addition, moral appraisals as an outcome in our regression model also reflected a combination of both self- and other-directed moral appraisals. Thus, in light of findings from Forkus and Weiss (2021), it remains unclear if additional nuances exist regarding the role of personal versus collective responsibility in moral appraisals and distress. This would be particularly important to address outside the military context, since military training and indoctrination emphasizes group cohesiveness as imperative to military success (Figley & Nash, 2006; Litz et al., 2015), which may in part explain Forkus and Weiss' (2021) findings in the military context.

Moral Attitudes and Biases. An additional theme of MI identified in Study 1 was changes in moral attitudes as prompted by PMIEs, which were exemplified by three main patterns: pessimism/disillusionment, moral confusion, and moral rigidity. This finding provides supporting evidence for the conceptualization of MI as a stressor-related problem, in that participants specifically attributed these attitudinal changes to their PMIEs. Indeed, while pessimism, psychological rigidity, and negative cognitive style more generally have long been established in their association with psychological distress (Gray et al., 2003; Tøien et al., 2010), these constructs are typically examined as dispositional factors describing a vulnerability to psychopathology, rather than as being precipitated by a specific event. Though the reciprocal nature of this relationship has also been demonstrated (i.e., there is a bi-directional relationship between negative cognitive style and psychopathology; Hankin et al., 2008; Nolen-Hoeksema et al., 1992), quantitative and longitudinal studies are still needed to verify how such associations may be prompted by PMIEs.

While it cannot be determined from Study 1, it is possible that the attitudinal changes prompted by PMIEs are also associated with another consequence of PMIE exposure identified: increased sensitivity and reactivity to moral situations. Indeed, attitudes represent general patterns of cognitive-emotional evaluations and reactions towards oneself, others, and the world, and therefore represent a lens through which experiences are filtered (Petty & Briñol, 2010). Given the evidence that attentional biases play an important role in the relationship between negative cognitive style and disorders like depression, anxiety and PTSD (i.e., known MI outcomes; Beck, 1967; Dalgleish & Watts, 1990; Mobini & Grant, 2007; Pineles et al., 2009), it follows that a similar mechanism may be at work for moral attitudes in their capacity to elicit moral distress. To my knowledge no studies have yet directly examined this question, and additional experimental

studies are needed to further examine how cognitive biases may play a role in both individual's proneness to experiencing a PMIE, and to maintaining distress in the aftermath of a PMIE.

Anger. The emotions elicited by PMIEs likely also play a role in the effects hypothesized above, as the experience of moral emotions influence the appraisals one makes about their position relative to others (Bortolan, 2017; Haidt, 2003; Tangney et al., 2007). With regards to anger in particular, research has demonstrated that trait anger is associated with an attentional bias towards hostile social cues, appraisals of others' behaviour as hostile, as well as rumination on past experiences which elicited anger (see review by Owen, 2011). While such anger-specific attentional biases and appraisals were not assessed by Studies 1 and 2, results nevertheless provide some interesting points for interpretation. For instance, in Study 1 anger was identified in participant narratives in two ways: as a prolonged reaction to PMIEs, as well as an emotional consequence of other features of distress identified in the analysis (e.g., reactions to moral situations, spiritual dissonance). This finding is certainly in line with previous research and theory proposing anger as a key moral emotional reaction to PMIEs (Atuel et al., 2020; Frankfurt & Frazier, 2016; Griffin et al., 2019; Litz et al., 2009), however quantitative analyses in Study 1 showed that anger was not statistically associated with PMIE exposure. We provided several explanations for this, including that anger as measured by the DAR was adequately captured by our measure of PTSD symptoms (PCL-5), which emerged as a significant predictor in our model. We also suggested that more complex associations among anger and PMIE exposure exist beyond what was investigated in the study, namely that anger reactions differed importantly based on PMIE type (i.e., self vs. other-based transgressions).

In some ways, these hypotheses were addressed and extended by findings from Study 2. For instance, we observed that dispositional anger (as measured by the DAR) was not associated

with moral appraisals, but that anger reactions to moral stressors (as measured by the AI) mediated the associations between both self- and other-directed moral appraisals and symptoms of PTSD and depression. Taken together, results of Studies 1 and 2 suggest that dispositional anger (DAR) may be less important in its association with PMIEs (including appraisals of such) than the expression of anger as it relates to psychological distress (PTSD in particular). It may also be that factors not examined quantitatively in these studies (e.g., rumination; Bravo et al., 2020; Hamrick et al., 2020; Kelley et al., 2019; Owen, 2011; Wilkowski & Robinson, 2010), interact with anger disposition and moral appraisals in their association with psychological distress. It should also be noted that Studies 1 and 2 were conducted in two very different samples, most notably with regards to psychiatric status and severity of PMIE exposure. While on one hand this fact provides support for the notion that the associations characteristic of MI with regards to state anger can be elicited from different types and levels of severity of PMIEs (i.e., as evidenced by qualitative findings of Study 1 and anger reactions findings in Study 2), future studies are still needed to more thoroughly investigate the relationships between trait and state anger in the context of MI. For example, longitudinal studies and those that control for dispositional anger in assessing the associations among state anger, PMIE exposure and MI distress may provide additional information as to which of these two anger constructs may be most important to MI. Studies further examining the role of dispositional anger in relation to moral appraisals and PMIE type (self- vs. other-based transgressions) are also likely to clarify the role of these factors in MI distress. Indeed, in Study 2 we examined the influence of dispositional anger on moral appraisals generally, and did not separate these based on self- and other-focused appraisals. While anger *reactions* were found to mediate the association between both types of appraisals and symptoms of PTSD and depression, it may be that dispositional anger nevertheless creates a vulnerability towards a particular pattern

of MI distress.

Guilt and Shame. In addition to anger, guilt and shame were two other moral emotions expressed by participants in Study 1 as consequences of their PMIEs. While we did not measure shame in this study, guilt distress, as measured by the TRGI, was not found to be significantly associated with PMIE exposure after accounting for combat exposure, PTSD and depression. Again, it may be that this feature of distress was adequately captured by our symptom measures, though it is also possible that additional nuances exist in the associations among guilt and shame, PMIE exposure and psychopathology. For instance, in Study 2 specific indirect effects of guilt reactions (as measured by the TRGI, the same scale used in Study 1) were observed for the associations between self-directed but not other-directed moral appraisals and symptoms of depression and PTSD. These observations fit with existing findings demonstrating that associations between self-based transgressions and guilt tend to be stronger in their relationship to clinical outcomes compared to other-based transgressions (Bryan et al., 2016; Dennis et al., 2017; Jordan et al., 2017; Lancaster, 2018; Litz et al., 2018; Maguen et al., 2010; Stein et al., 2012; Williams & Berenbaum, 2019). While identified in the qualitative analysis, shame as an emotional consequence of PMIEs and moral stressors was not measured quantitatively in either study, though trait shame-proneness was measured in Study 2. Given the relevance of this emotion to psychopathology, and to theories of MI in particular, this is an important limitation. Indeed, model fit was very poor for both models tested in Study 2, suggesting that additional factors not examined (perhaps shame) were likely missing in explaining the relationships examined. Previous research has demonstrated that while guilt is an important feature of distress in problems like PTSD and depression, shame likely plays a greater role than guilt in the presentation of clinical distress. For example, in the study by Orth and colleagues (2006) described above, they observed that after

controlling for guilt, shame was significantly associated with depression in their sample of participants having recently experienced a family break up. This effect was also observed by Kim and colleagues (2011), whose meta-analytic review found that shame was more strongly associated to depression than guilt. The work of June P. Tangney, a widely regarded expert in the field of moral emotions and psychopathology, has also shown that the difficulties elicited by the experience of shame are more impactful compared to guilt (see Tangney et al., 1992). Similarly, in a military sample, Frankfurt and colleagues (2018) found that shame but not guilt mediated the association between combat exposure and symptoms of PTSD and depression.

These nuances are highly relevant to the conceptualization of MI. Indeed, Litz and colleagues (2009) originally purported that the attributions one makes about the causes of a morally transgressive event are in large part responsible for MI as a sequela, proposing that attributions that are global, internal, and stable are more likely to engender psychological distress in the face of PMIEs (Litz et al., 2009). This attributional pattern is the same as that which defines shame, and has long been understood to be a cognitive factor in depression (Joireman, 2004; Raps et al., 1982; Tangney et al., 2007; Tracy & Robins, 2004). Though my research did not directly assess this specific pattern of attributions, results from Study 2 may nevertheless point to some interesting avenues for future research. For instance, in my regression model, only the guilt-repair subscale of the GASP was found to be associated with moral appraisals. This suggests that individuals who are more likely to act to repair their own transgressions may also be more likely to negatively appraise situations through a moral lens. The way that this type of guilt appraisal might contribute to the MI distress, however, remains largely unknown. For instance, previous research has shown that guilt and shame proneness are associated with psychopathology, with shame exacting stronger and more lasting effects than guilt (Tangney et al., 1992). Thus, it may

be that while reparative guilt may be more strongly associated with moral appraisals, shame-proneness may still be more strongly associated with MI distress. Indeed, the two shame-proneness subscales of the GASP (withdrawal and negative self-evaluation) appear to map more closely onto features of MI distress thus observed in the literature (e.g., internal, global, stable attributions and social isolation), therefore studies designed to specifically measure these features of shame both as *dispositional* traits and outcomes of PMIEs are needed to properly tease apart how such characteristics may be involved in the development and maintenance of MI distress. For example, interactions likely exist such that an individual predisposed to shame, who conducts an action appraised as immoral, may be more likely to internalize feelings of guilt associated with the action in such a way as to exacerbate feelings of shame (Tangney, 1992). Again, given that we did not examine appraisals and distress separately in their association with guilt and shame proneness, future research is needed to address this question.

Another explanation for our findings regarding guilt and shame is that the quality of events most commonly endorsed in Study 2 (e.g., making decisions about social distancing) were not of high enough magnitude to elicit the expected effects. Future studies are therefore needed to assess the influence of guilt and shame proneness on moral appraisals and psychological distress in the context of events more likely to prompt pathological outcomes (Litz & Kerig, 2019). Importantly, the above discussion of findings regarding guilt and shame proneness is limited by the poor reliability of the GASP subscales in this sample, and additional research is needed to better understand the role of both dispositional and state features of guilt and shame in MI.

Sadness. Participants in Study 1 also expressed sadness as an emotional consequence of their PMIEs. While we did not measure this emotion directly in either study, nor is this emotion typically the focus of investigations of MI, research is beginning to show that sadness may indeed

be an important consequence of PMIE exposure (Litz et al., 2018; Purcell et al., 2016; Stein et al., 2012; Williamson et al., 2020). This may be particularly true in the context of specific types of PMIEs, such as those that involve the loss of a cherished person or those that involve direct exposure to aftermath of violence or atrocities (Litz et al., 2018). Indeed, sadness is a key emotional response relevant to the experience of grief (Bonanno et al., 2008), and several scholars in the areas of spirituality and pastoral care have conceptualized MI as a grief reaction that occurs in response to the loss of identity, values, and purpose prompted by PMIEs (Doehring, 2019; Ramsay, 2019). Findings regarding grief demonstrate complex reactions such as preoccupation with the perceived loss and an inability to accept the events, as well as guilt, abandonment, anger and a loss of purpose or faith that cause significant distress and impairment (Gillies & Neimeyer, 2006; Lee et al., 2013; Lichtenthal & Breitbart, 2015) – features of distress that mirror those of MI. To my knowledge, however, no study has yet directly assessed how grief specifically may be associated with MI.

Anxiety. The last most common emotion identified in Study 1's qualitative analysis was anxiety. Again, while not measured quantitatively in either study conducted here, previous research has shown that anxiety as an outcome is associated with PMIE exposure (Griffin et al., 2019; Hall et al., 2021). However, whether anxiety is more so associated with the psychological responses typical of fear-based conceptualizations of trauma compared with MI has yet to be determined. One reason for this is that most of the research to date has been conducted in the military context, and therefore most often in the context of traumatic events (e.g., sexual assault, killing in combat, witnessing atrocities), therefore fear-based and moral consequences become confounded. Indeed, a large proportion of the participants in Study 1 met diagnostic criteria for PTSD, indicating trauma exposure and the presence of at least some classically fear/arousal-based

symptoms associated with this syndrome. One qualitative study conducted so far has attempted to address this confound. Williamson and colleagues (2020) conducted a thematic analysis comparing the narratives of male military Veterans having experienced either a traumatic event, a PMIE, or a "mixed" event (i.e., an event that involved a moral transgression in the context of a traumatic event). Their findings showed that anxiety was more prominent in individuals exposed to traumatic events only, compared with other groups. Additional research is surely needed to clarify the role of anxiety as it pertains to MI, for example by investigating the quality of anxiety that may be experienced in the context of fear-based events versus PMIEs (e.g., anxiety about being hurt versus anxiety about being shamed or rejected, respectively), as this will be important for clinical conceptualization.

Results from Study 2 pertaining to anxiety sensitivity may also be relevant in this regard. Unexpectedly, we observed that anxiety sensitivity significantly predicted moral appraisals. Several possible explanations are offered in light of this finding. First, the study was conducted in the context of the COVID-19 pandemic, and at the time of data collection the virus was still poorly understood, and public health measures in Canada were very disruptive to peoples' lives. It may therefore be that individuals who were more likely to be concerned with adverse health outcomes of being exposed to the virus may also be those that were more vigilant to theirs and others' decision making regarding public health measures. Given the association between health anxiety and anxiety sensitivity (Lees et al., 2005; Melli et al., 2016; Olatunji & Wolitzky-Taylor, 2009; Wheaton et al., 2010) this vigilance may have manifested itself in heightened moral appraisals, given the context of the study. Indeed, a study by Lees and colleagues (2005) demonstrated that individuals higher in anxiety sensitivity presented greater attentional bias towards health-related threatening images, supporting this possibility. Further, research conducted during the pandemic

has shown that anxiety sensitivity is positively associated with COVID-19 fear and related psychological distress, with the physical concerns dimension of anxiety sensitivity showing the most pronounced effects (Manning et al., 2021; McKay et al., 2020; Rogers et al., 2021; Schmidt et al., 2021; Warren et al., 2021). To my knowledge, ours is the first study to examine anxiety sensitivity in relation to moral appraisals during the pandemic specifically, and given that we did not control for illness anxiety in the context of COVID-19, the question of whether anxiety sensitivity may relate to moral appraisals outside the context of health-related concerns remains unknown.

A related possibility for our findings in Study 2 is that perceived moral violations and emotions elicit physiological arousal, which individuals sensitive to anxiety sensations may interpret as reinforcing the moral "wrongness" of a situation. Relatively few studies have so far been conducted which examine such effects, and findings appear mixed. For example, a study by Cheng and colleagues (2013) demonstrated that feelings of arousal mediated the association between emotional responding and moral condemnation, regardless of emotional valence. However a study by de la Viña and colleagues (2015) showed that negative emotional valence but not arousal was associated with severity of moral judgments. Further, there is evidence that particular moral dilemmas may be more likely to produce physiological arousal (Carmona-Perera et al., 2013; McDonald et al., 2017). For example, a study by McDonald and colleagues (2017) demonstrated that physiological arousal was highest for moral dilemmas which require directly causing harm to others (i.e., "trolley" scenarios) compared with scenarios that prompted inaction or omission (e.g., indirectly causing harm). This finding suggests that when individuals are motivated to prevent harm to others (such as, for example, by following public health recommendations during the COVID-19 pandemic) they may experience higher levels of

physiological arousal. Given that we also observed that sense of duty related to the mitigation of COVID-19 was associated with moral appraisals in Study 2, it may be that these factors interact together with anxiety sensitivity to create a vulnerability towards moral distress. Additional research is needed, however, to test these hypotheses.

Social Factors

Results from my dissertation suggest that the social impacts of PMIEs may be manifested in two main ways. The first is changes in social attitudes and relevant behaviours resulting from these changes (e.g., loss of trust leading to guardedness). The second represents the social consequences of moral pain arising in the aftermath of PMIEs (e.g., social-behavioural responses to shame, such as withdrawal and isolation). In Study 1, we identified loss of trust as an important social consequence related to PMIEs in our treatment-seeking CAF sample. This finding echoes that of other research demonstrating that erosions in trust are a common response to PMIEs (Currier et al., 2018; Koenig et al., 2018; Rabelo et al., 2019; Roth, qureshi, et al., 2022; Sullivan & Starnino, 2019; Williamson et al., 2019; Yeterian et al., 2019), lending further support to the importance of this feature of distress in MI (Atuel et al., 2021; Litz et al., 2009; Shay, 2009, 2014). Importantly, though this topic is only beginning to be addressed outside the military context, disruptions in trust also appear as consequences of PMIEs beyond the occupational setting. A recent study by Roth and colleagues (2022), for instance, demonstrated that difficulties with trust were a common source of distress among forensic inpatients found not criminally responsible due to mental illness for crimes they had perpetrated. This was true for expressions of both distrust of oneself (i.e., inability to trust one's own moral judgment and actions in the aftermath of a PMIE) and distrust of others. Both of these features of distrust were also observed in our Study 1 findings. In the context of COVID-19, a study by Song and colleagues (2021) showed that health care

professionals expressed feelings of distrust towards others in response to the pandemic, a sentiment that was in this case most often melded with fear about contracting the virus (e.g., distrust due to being lied to by others about their COVID-19 status, thereby putting them at risk). While this study does not link the experience of distrust to particular PMIEs, it does highlight it as a feature of moral distress experienced during the pandemic, and one that the authors found was associated with social isolation and sense of alienation among these health professionals (Song et al., 2021). Of note, the majority of the evidence so far regarding disruptions in trust in the context of MI has been qualitative, and more research is needed to empirically determine the role of trust disruptions in the context of PMIEs and their consequences. For instance, to my knowledge, no study has examined influence of trust on mental health outcomes as they pertain to different PMIE types (i.e., self- versus other-directed transgressions). Further, studies that distinguish between trust violations (i.e., betrayal) as a feature of the PMIE itself, versus distrust as a feature of MI distress are needed (e.g., to disentangle a moral "injury" from its clinical consequences, as described by Atuel and colleagues' (2021) theory of MI). For example, a recent study by Kopacz and colleagues (2018) showed that trust was inversely associated with severity of symptoms of depression, PTSD and anxiety in a sample of active duty and Veteran members of the US military. This study did not, however, control for trauma or PMIE exposure. Thus, the question of whether highly stressful experiences involving trust violations represent a catalyst for psychological distress, or rather that distrust is simply an important feature of psychopathology in this population cannot be known. Furthermore, research has long emphasized distrust as a notable feature of psychological distress in the context of interpersonal trauma (Bell et al., 2019; Charuvastra & Cloitre, 2007; Cloitre et al., 2016; Forbes et al., 2012; Gobin & Freyd, 2014; Herman, 1992, 2015), therefore whether the distrust arising from different types of PMIEs is qualitatively different from that seen the context

of interpersonal trauma is yet to be determined.

As noted above, disruptions in trust are likely not mutually exclusive from the other disruptions in interpersonal relatedness observed in Study 1. For instance, when describing the experience of being guarded around others as a consequence of PMIEs, participants in Study 1 noted distrust as a reason not to open up and connect with others (e.g., "I don't keep people in that much, so they don't have ways to get me"). Participants also described being guarded due to shame, as expressed by participants describing concerns about being "found out" as a bad person, or otherwise rejected by others. Importantly, these motivations for being guarded around others were provided as an explanation for their withdrawal or isolation. Together, these findings point to an important potential mechanism with regards to the social consequences of PMIEs, namely that PMIEs prompt moral pain (e.g., shame, negative beliefs about trust), leading to important impairments in social functioning (Farnsworth et al., 2017). Of course, conclusions as to this type of causal explanation for MI are premature at this stage, and much additional research is needed. Still, findings from Study 1 echo those of previous studies (Held, Klassen, Hall, et al., 2018; Kopacz et al., 2018; Maguen et al., 2010; Purcell, Griffin, et al., 2018), providing validity to the notion that PMIE exposure prompts important disruptions in social well-being.

Once again, it is worth noting that relational problems appear in many forms of psychological distress, and the extent to which the social consequences described in the context of MI are uniquely associated with PMIE exposure is yet to be determined. Knowing what we do, however, about the protective influence of social support on mental health (Tew et al., 2012; Wang et al., 2018), and the deleterious associations so far demonstrated among PMIE exposure and mental well-being, the value of better understanding these associations should not be understated. For example, a study by Kelley and colleagues (2019) found that social connectedness was an

important moderator in the association between other-directed expressions of MI and suicidality, suggesting a protective influence of this factor. Research among health care workers has also shown that positive team dynamics and feeling supported by one's community may provide a protective effect against the development of moral distress (Bruce et al., 2015; Smallwood et al., 2021). Importantly, we did not assess for any type of social consequences relative to moral stressor exposure in Study 2, a limitation that prevents comment on these associations outside the occupational context.

Conceptualizing MI : The nature of PMIEs

In light of the above analysis of findings regarding the existential, cognitive, emotional and social features of MI, what can be said about role of PMIEs in eliciting psychological distress? The cross-sectional nature of the research conducted unfortunately precludes any causal explanation, however together studies do provide some interesting insights into the nature of distress *in the context* of different moral stressors. For instance, though our original study design for Study 1 involved the planned recruitment of a "trauma-only" comparison group, by the end of the study only 2 out of 95 individuals screened stated that they were experiencing distress due to a non-PMIE traumatic event. Given that our study was conducted in a clinical sample, it may be that the moral nature of the distress elicited by PMIEs leads to greater symptom severity and impairment and therefore an overrepresentation of individuals suffering from moral distress in the clinic. For example, classic fear-based models of PTSD emphasize avoidance as a key mechanism in the maintenance of the disorder (Ehlers & Clark, 2000; Foa & Kozak, 1986). As with other classically fear-based disorders (e.g., specific phobia), it is conceivable that – whether adaptive or not – individuals who have organized their lives around the avoidance of reminders of their trauma may not experience as much disruption in their lives due to their symptoms (e.g., a Veteran who

chooses to live in the countryside with their family, rather than in a noisy urban city), and be less likely to seek treatment. Given the existential nature of the distress prompted by PMIEs, however, it may be that the experiences defining MI (e.g., disillusionment, anger, shame) are more difficult to escape. In studies examining mental health in the context of combat and PMIEs, for example, findings suggest that PMIEs are significantly associated with symptom severity beyond the influence of combat exposure (Beckham et al., 1998; Currier et al., 2014). This rationale may be especially applicable to findings pertaining to suicidality, where the existential and interpersonal nature of MI distress may be particularly relevant (e.g., thwarted belongingness, a social consequence of MI, is a key risk factor for suicidality within the interpersonal model; Bryan et al., 2014; Bryan et al., 2018; Chu et al., 2017; Joiner et al., 2012). This theory is in need of further examination, however, and additional studies in the context of non-combat events are needed.

Indeed, the context in which PMIEs occur is surely an important factor with regards to conceptualization and outcomes. Importantly, prevalence estimates for PMIE exposure in the CAF to date are solely based on frequency of endorsement of a number of potentially morally injurious combat experiences, such as seeing ill or injured women or children that the person was unable to help. These estimates show that up to 65% of deployed soldiers have experienced such an event (Hansen et al., 2021; Nazarov et al., 2018). We surprisingly observed in Study 1 that combat exposure was negatively associated with PMIE exposure. One potential explanation for this finding is regarding expectations of combat experiences compared with PMIEs, in that individuals trained for combat exposure may experience such events as “part of the job” and therefore may be less psychologically disrupted by such experiences compared with PMIEs, which military personal are generally less prepared for (Thompson & Jetly, 2014). Even though *degree* of combat exposure has an important bearing on problems like suicidality (Guerra & Calhoun, 2011), the extent to

which degree and quality of experiences interact is worth examining further. Indeed, research is emerging to suggest that particular types of combat experiences may be associated with different patterns of symptoms (Litz et al., 2018; Nazarov et al., 2018; Shea et al., 2016), however the extent to which expectations play a role has not yet been examined.

In addition, while 80% of our sample endorsed some degree of combat exposure, nearly 20% reported that their index PMIE occurred while on base. Unfortunately, due to ethical concerns we were unable to gather details about the types of PMIEs that occur on base. While the MI literature so far is heavily biased towards experience of combat Veterans, a few studies have examined the influence of military sexual trauma in the context of MI (Frankfurt et al., 2018; Hamrick et al., 2021) which may provide some indication as to the nature PMIEs that occur outside of combat. These studies show that military sexual trauma is associated with feelings of betrayal and decreased trust in the military organization, in addition to poorer mental health (Andresen et al., 2019; Rabelo et al., 2019). Events involving feeling betrayed by others were reported by 100% of participants, and this PMIE type was most commonly endorsed as an index event. Still, it is likely that military sexual trauma represents just one type of PMIE that may occur on base, and more research is needed to better understand these types of events.

Another interesting finding regarding PMIE exposure in Study 1 was that the majority of participants in Study 1 (>70%) were able to identify a single PMIE that they attributed to their current distress. This finding fits with the conceptualization of MI as a stressor-related problem. Still, as has been revealed from research on traumatic events (Brewin et al., 2017), it may be that chronic exposure to moral stressors elicit patterns of distress requiring a different approach to conceptualization and care. Research on complex PTSD, for example, has shown that individuals experiencing expanded interpersonal and functional consequences associated with this diagnostic

construct are more likely to have experienced chronic exposure to trauma (Karatzias et al., 2017). Given that nearly 30% of our participants, not an insignificant proportion, were unable to attribute their distress to a single PMIE it is likely that a better understanding of the influence of chronic exposure to PMIEs will improve our understanding of MI. The same is true about the impact of a single *type* of PMIE versus PMIEs that encompass various features (e.g., feeling betrayed by a leader upon being disciplined in the context of a transgressive act). Indeed, moral transgressions across all four categories investigated were reported by participants, and in the case of index events (both single and multiple), an important proportion of participants (23% and 56%, respectively) reported that their index event fit into more than one PMIE category. This again points to the need to further elucidate the features of PMIEs that may be most distressing (e.g., do mixed events elicit more severe psychological consequences compared to events that fit in a discrete category?), as this may have important implications for conceptualization and treatment.

Importantly, the above discussion with regards to PMIEs is based on descriptive findings. In Study 2, we observed no statistical associations between number of COVID-19 stressors, moral appraisals and distress. I provide two potential explanations for this finding. First, it may be that moral appraisals are indeed more important in eliciting distress than event exposure itself. For instance, in Study 1 all study participants screened into the study by responding affirmatively to the question: *[...] have you ever experienced or learned about events that damaged your beliefs or expectations about the kind of person you are, the kind of world we live in, or right and wrong ways to treat people?* Thus, all participants in Study 1 provided an a priori moral appraisal and rationale for the distress they described during interviews and on self-report questionnaires (participants were asked to keep their PMIEs in mind while completing questionnaires). Further, the MIES, used to measure PMIE exposure, contains questions phrased in such a way that it is

difficult to separate event exposure from moral appraisals (e.g., "I acted in ways that violated my own moral codes or values"). In Study 2, however, we attempted to separate the influence of event exposure from appraisals, observing that appraisals rather than event exposure were associated with outcomes. Results therefore can be understood to support the notion that moral appraisals represent an important catalyst for distress, an explanation that fits with conceptualizations of MI which hold that the moral *quality* of the event (as imposed by individual attributions) is what elicits distress (Litz et al., 2009). While other researchers have similarly attempted to separate events from appraisals (e.g., Frazier et al., 2017; Hansen et al., 2021; Lancaster, 2018; Nazarov et al., 2018), our study was the first to do so outside the military context. As noted previously, the quality of war zone experiences are likely such that separation of moral appraisals from events is very difficult, as these often involve exposure to extreme human suffering and decisions with life and death consequences (e.g., "I made a mistake in a warzone that led to injury or death;" Frazier et al., 2017). Indeed, in their continuum model of MI, Litz & Kerig (2019) maintain that PMIEs likely to have the greatest psychological impact are those that elicit the strongest moral emotions, which are likely to be lower-frequency but higher impact events (e.g., combat).

A second explanation for our findings in Study 2, however, is that our "count" approach to measuring PMIE exposure was not appropriate. Our COVID-19 experiences scale aimed to measure individuals' exposure to an array of potentially morally stressful events and identify the most impactful experience to the individual – an approach that is common in identifying potentially traumatic events. However if compared with studies that have attempted to parse out the impact of combat exposure from MI distress, measures of combat typically measure degree of exposure to various events (e.g., how often while you were on deployment were you exposed to incoming fire?) rather than a discrete number of different *types* of combat experiences. Given that

we did not measure COVID-19 related stressor exposure in this way, it may still be that *degree* of exposure matters beyond the number or variety of events experienced in eliciting moral appraisals and distress. Future research is needed to address this question.

In sum, just as research in the context of general life stressors (e.g., Charles et al., 2013) and trauma (e.g., Boyle, 2017; Foa et al., 1999) has shown that negative interpretations of stressors are robustly associated with psychopathology, results from this research appear to suggest that attributions one makes regarding a PMIE also likely influences outcomes. More research is needed, however, to further examine the specific associations among event quality, degree of exposure, and moral appraisals in their relationship with psychological outcomes.

Clinical Implications of MI

The above discussion of findings from Studies 1 and 2 provides support for the validity of the MI construct in a number of ways, including its conceptualization as a stressor-related problem, the importance of moral appraisals and emotions, and the centrality of existential and social features in the experience of psychological distress. With regards to the clinical implications of these findings, this section aims to address the question of how the MI construct fits with current conceptualizations of stressor-related problems and their treatment.

MI, Depression, and PTSD

The two clinical constructs we examined in both Studies 1 and 2 were PTSD and depression. After controlling for symptoms of depression, guilt and anger, we observed in Study 1 that PTSD remained significantly associated with PMIE exposure. In Study 2, findings from our path analysis revealed that the association between moral appraisals and both PTSD and depression were at least partially mediated by guilt and anger. Given that the DSM-5 constructs of PTSD and depression applied in this study overlap substantially (i.e., cluster D symptoms of PTSD, such as

the experience of negative affect and negative cognitions about self and the world, are representative features of depression), results together suggest that, in line with MI theory, depressive features and moral emotions make up an important part of PTSD severity in the context of moral stressors (Litz et al., 2009).

Unfortunately, neither Study 1 or 2 examined specific features of PTSD (e.g., arousal, avoidance, cognition and mood, and re-experiencing) separately as they relate to moral appraisals and distress, therefore it is likely that additional nuances exist. Indeed, in Study 1 our abductive approach to qualitative analysis was such that we focused on the identification of themes within domains most relevant to MI theory (e.g., identity, spirituality), though features such as hyperarousal and re-experiencing were certainly part of the clinical presentation of participants. Previous research examining features of PTSD separately in the context of MI have so far only been conducted in the military context (Bryan et al., 2018; Levi-Belz et al., 2020; Smigelsky et al., 2019). Using latent profile analysis, a study by Smigelsky and colleagues (2019), for example, showed that a profile of distress indicative of MI was represented by elevated guilt, low quality of life and low forgiveness as well as elevations for all PTSD symptom clusters except avoidance, suggesting that this latter cluster of symptoms was less relevant to the differentiation of profiles. Further complicating our understanding of PTSD in the context of MI, another study demonstrated that specific symptoms (as opposed to clusters of symptoms) of PTSD overlap with MI (e.g., cluster B re-experiencing – nightmares) whereas others are more distinctively associated with PTSD (e.g., cluster B re-experiencing – flashbacks; Bryan et al., 2018). Thus, additional research is needed to assess the incremental validity of the MI construct, especially outside of the context of trauma and military events.

In addition, most of the research to date on the intersections among PTSD, depression and

MI have applied DSM-5 conceptualizations of these disorders. Importantly, the most recent iteration of the World Health Organization's International Classification of Diseases (ICD-11 World Health Organization, 2019) has removed depressive-like symptoms (e.g., anhedonia) from its description of PTSD diagnostic features, and the diagnosis is represented only by re-experiencing, avoidance, and hyperarousal symptoms. Further, the ICD-11 includes a related construct, complex PTSD (C-PTSD) as a new diagnostic category. While this construct has been studied for decades (Herman, 1992; Taylor et al., 2006), this is the first time it is recognized as a legitimate diagnostic entity. What distinguishes C-PTSD from PTSD is that, in addition to the criteria for PTSD described above, those who meet criteria for C-PTSD also present with the following: severe disturbances in affect regulation, persistent beliefs about the self as worthless or defeated accompanied by pervasive feelings of shame, guilt, or failure related to the stressor, and difficulty feeling close to others or sustaining relationships. These latter criteria overlap with findings from Study 1 showing that disruptions in interpersonal relatedness, identity and negative moral emotions are important sequalae in the aftermath of military PMIEs. Given the recency of this addition to our diagnostic taxonomy, only a few studies have so far applied ICD-11 C-PTSD construct in the context of MI. However, findings appear to corroborate its relevance to MI. For instance, findings from a treatment-seeking Veteran sample in the UK recently demonstrated that those who reported symptoms consistent with C-PTSD reported significantly higher scores of both self-directed and other-directed expressions of MI as well as depression compared to those with probable PTSD or no PTSD (i.e., another mental health condition or no mental health condition; Currier et al., 2021; Murphy et al., 2021). Among Israeli health care workers during COVID-19, Zerach and Levi-Belz (2022) showed that MI was associated with both ICD-11 PTSD and C-PTSD, but only when accounting for the moderating effect of self-criticism. Importantly, these

findings regarding MI and C-PTSD are preliminary, and have so far only been conducted in the occupational context. Moreover, the above studies did not separate event exposure from moral appraisals and outcomes (i.e., they used the MIES, which conflates exposure and appraisals; Koenig et al., 2019) therefore the question as to the role of moral appraisals versus event exposure in these associations remains to be specified. Indeed, both the PTSD and C-PTSD constructs as elaborated in the ICD-11 maintain exposure to trauma as a required feature, therefore whether it can be said that patterns of distress akin to MI reliably occur outside the context of fear-based events remains to be further studied.

Prolonged Grief

Another stressor-related problem previously mentioned that maps on to criteria for MI is prolonged grief, which was also recently recognized in the ICD-11 and DSM-5-TR as a diagnostic category. To be diagnosed with ICD-11 prolonged grief disorder, for example, an individual must present with a "persistent and pervasive grief response characterised by longing for the deceased or persistent preoccupation with the deceased accompanied by intense emotional pain (e.g. sadness, guilt, anger, denial, blame, difficulty accepting the death, feeling one has lost a part of one's self, an inability to experience positive mood, emotional numbness, difficulty in engaging with social or other activities)." While this reaction is understood to occur in response to the death of a loved one, it is conceivable that if the circumstances precipitating a grief reaction involved a moral transgression (i.e., loss of a less well-known person, or mass violence) that a pattern of psychological distress akin to prolonged grief may be elicited. Indeed, moral emotions, identity disruption, detachment and interpersonal difficulties as well as dissonance resulting from an inability to resolve the event are described as core features of both MI and prolonged grief. Similar to the case of MI, research has also successfully differentiated prolonged grief from similar

problems, namely PTSD and depression (Boelen, 2016; Boelen et al., 2021; Eddinger et al., 2021; Kokou-Kpolou et al., 2021). In addition, clinical approaches to relieving distress associated with complex bereavement often involve meaning-making, connecting with others, engaging in values-based activities, and forgiveness of self and others – strategies that mirror those proposed to address MI distress (see below; Evans et al., 2021; Jordan & Litz, 2014; Litz et al., 2015; Rosner et al., 2011; Schenck et al., 2016). Unfortunately, in Studies 1 and 2 we did not specifically assess the specific impact of loss, relevant as this is to both the context of military life and the COVID-19 pandemic. Therefore, we cannot determine the extent to which features of MI observed (particularly in Study 1) may be representative of a grief reaction, whether in combination with MI or not.

Other Diagnostic Constructs

Beyond the above, it is likely that additional diagnostic constructs fit with MI distress, although these have not yet been studied systematically in the context of PMIEs. Indeed, in a forthcoming study which examined a nationally representative sample of CAF members and Veterans (Easterbrook et al., in preparation) it was demonstrated that exposure to PMIEs (as measured by the MIES) was significantly associated with increased odds of experiencing past-year mental health problems, and these ranging across all diagnostic categories included in the analysis (i.e., major depression, panic disorder, social anxiety disorder, generalized anxiety disorder, PTSD and suicidality). While it is beyond the scope of this dissertation to separately examine the nosology of each of these diagnoses in relation to MI, it is clear that the breadth of problems so far shown to be associated with MI confirms its status as a clinically relevant construct. Whether or not this status as such will eventually be recognized as a syndrome itself, rather than as a vulnerability factor that contributes to psychopathology (akin, for example, to perfectionism;

Hewitt & Flett, 1991) is yet to be determined. Additional studies examining MI's incremental and predictive validity beyond existing diagnoses, as well as studies examining clinical utility are all required to address this question.

Treatment Implications

With regards to treatment, the existential and spiritual features of MI distress as identified above have so far garnered the most interest, as clinicians and researchers have acknowledged the historical lack of attention to these features in existing treatments, particularly in the military context (e.g., Worthington & Langberg, 2012). In response to the growing evidence supporting MI's relevance to clinical outcomes, a number of interventions strategies have been developed. For instance, Koenig and colleagues (2017) have developed a set of interventions which focus on addressing spiritual struggles and MI in the context of PTSD. In their approach, the authors distinguish between psychological and religious forms of MI, the latter consisting of more pronounced spiritual struggles and loss of religious faith compared to the former. According to the client's particular beliefs, resources such as scriptures, prayer/meditation and rituals are used to challenge "stuck points" in erroneous beliefs that may be contributing to the MI (e.g., to challenge thoughts of self-blame when these are not appropriate). In cases where beliefs are not erroneous, interventions focus on atonement, fostering compassion and forgiveness, and making amends, all within the client's framework of beliefs (Koenig et al., 2017). Indeed, the therapeutic value of these latter concepts have been widely accepted as essential to moral repair, with clinicians and researchers emphasizing practices such as mindfulness and loving-kindness meditation (Litz & Carney, 2018), meaning-making (Button et al., 2017; Doehring, 2015, 2019), forgiveness of self and others (Litz et al., 2015; Worthington & Langberg, 2012), and the acceptance of moral pain and commitment to valued actions (Borges, 2019; Capone et al., 2021; Evans et al., 2020;

Farnsworth et al., 2017; Maguen et al., 2017; Nieuwsma et al., 2015). Importantly, specific protocols developed to address MI are themselves only beginning to be studied (Gray et al., 2012; Maguen et al., 2017), however preliminary research does tend to support the application of specific strategies detailed above. For example, studies have shown that rumination, a potential maintaining mechanism in MI distress (observed in Study 1), is negatively associated with self-compassion and forgiveness, and positively associated with hostility, shame, and pessimistic thinking (Cheung et al., 2004; Lenferink et al., 2017; Lyubomirsky & Nolen-Hoeksema, 1995; McCullough et al., 2007; Thompson et al., 2005). Self-compassion has also been shown to moderate the association between PMIE exposure and mental health problems (Forkus et al., 2019) and problems with self-forgiveness have been associated with increased odds of suicidal ideation (Levi-Belz et al., 2022; Smigelsky et al., 2020). Similarly, a study by Currier and colleagues (2015) used structural equation modeling to show that the extent to which participants' were able to make meaning of their PMIEs had a buffering influence on mental health outcomes. In a non-military sample, Kuhl & Boyraz (2017) demonstrated that, at low to moderate levels of PTSD severity, mindfulness was positively associated with trust and social support. Lastly, a qualitative study by Purcell and colleagues (2018) on the experience of an intervention for MI, Impact of Killing in War (Maguen et al., 2017) described how interventions aimed at encouraging participants to discuss and accept their experiences of killing helped resolve conflicts in identity and foster self-forgiveness. Thus, existing evidence, though preliminary, appears to support the therapeutic value of strategies aimed at resolving existential and spiritual distress, though more research is needed to evaluate the efficacy of specific treatment protocols.

Given that moral violations are inherently social experiences, interventions which do not properly account for the interpersonal nature of distress and repair are unlikely to be helpful in

addressing MI (Woodyatt et al., 2022). As such, interpersonal elements within the interventions described above are often emphasized, for example in the clarification of values that are pertinent to one's social roles (e.g., parent, soldier; Hayes et al., 2016; Nieuwsma et al., 2015), experiential interventions aimed at encouraging disclosure of transgressions and fostering forgiveness between the client and esteemed others (Litz et al., 2015), and efforts at making amends as a means of regaining trust, intimacy and connection with others (Koenig et al., 2017; Worthington & Langberg, 2012). In addition, it may be that existing evidence-based, interpersonal therapies would also be helpful in treating MI distress, though to my knowledge studies have not yet been conducted which address this question. For example, interpersonal psychotherapy (IPT) is a long established, evidence-based treatment approach to depression, which focuses on relieving distress as it arises from relationship and role conflicts, as well as grief and loss (Markowitz & Weissman, 2004). Given that, as shown in my research, PMIEs prompt distress that is highly relevant to these domains of experience, research as to the applicability of IPT interventions to MI is highly warranted. Another interpersonally focused intervention that has amassed a growing evidence base is Skills Training in Affective and Interpersonal Regulation (STAIR; Cloitre et al., 2020; Levitt & Cloitre, 2005), a therapy protocol that was developed to treat C-PTSD symptoms related to disturbances in self-organization (i.e., devalued sense of self, interpersonal difficulties). The focus of STAIR is on addressing these symptoms using strategies such as improving emotional awareness, and identifying and challenging existing interpersonal schemas (e.g., "nobody cares about me"). Again, no specific research has yet been conducted that evaluates the applicability of this intervention to MI distress, however given its focus on improving interpersonal functioning, studies examining its applicability to MI are justified.

Furthermore, while traditional cognitive behavioural approaches have been criticized as

being inappropriate to address MI distress, particularly in the military context (e.g., Gray et al., 2017), a number of findings contradict this position. For instance, several case studies of military members undergoing cognitive behavioural treatment for PTSD (i.e., cognitive processing therapy, prolonged exposure therapy) have described how by helping clients reappraise their PMIE to promote an appropriate (rather than exaggerated) sense of responsibility towards events, distress can be alleviated (Evans et al., 2021; Held, Klassen, Brennan, et al., 2018; Smith et al., 2013). The rationale for this approach is supported in part by findings from Study 2 showing that appraisals may be more strongly associated with distress than event exposure. Still, there are likely cases where reappraisal of the PMIE is not appropriate or would be less helpful, whereby the application of interventions targeting existential and spiritual distress are more indicated. For example, Maguen and colleagues' (2017) Impact of Killing in War protocol, developed as an adjunct treatment to cognitive behavioural therapy (CBT) for PTSD, engages clients in exercises meant to help them elaborate the meaning of their killing experience, challenge thoughts about the self as unforgivable, and engage in meaningful activities aimed at making amends and accepting forgiveness.

Results from Study 1 and 2 provide further support for the rationale of applying cognitive behavioural interventions to MI by highlighting the types of thoughts and beliefs that may be maintaining distress. For example, cognitive restructuring surrounding rigid moral attitudes and beliefs about trust may be helpful in encouraging psychological flexibility and relieving distress. Further, our finding that anxiety sensitivity was associated with moral appraisals suggests that helping clients restructure beliefs about the dangers of physiological arousal may dampen the influence of appraisals on distress. Indeed, research has shown that addressing anxiety sensitivity in therapy has a significant positive impact on outcomes (Gallagher et al., 2013; Taylor, 2003),

though the effect of addressing this in the context of moral appraisals and distress is yet to be evaluated. In addition, the finding that sense of duty was also associated with moral appraisals indicates that targeting such beliefs in treatment may also be beneficial. For instance, suggested approaches for addressing MI maintain that psychoeducation regarding the nature of moral pain (e.g., as being indicative of an in-tact moral conscience) provides clients with better understanding of their distress, which paves the way for moral repair (e.g., Farnsworth et al., 2017; Litz et al., 2015; Maguen et al., 2017; Nieuwsma et al., 2015). Highlighting beliefs about duty in the context of moral pain may thus be helpful in identifying important values and related activities that encourage the expression of duty to one's community.

Contextual Considerations for Assessment and Treatment

Importantly, while the strategies described above provide important considerations for treatment, it is worth noting that a major potential barrier to recovery in the context of MI is trust. As noted in Study 1, PMIEs have the capacity to disrupt individual's sense of trust in others, including people in positions of authority and those connected to systems like the military. While lack of trust in health professionals is an important barrier to care in general, both within and outside the military context (Fikretoglu et al., 2008; Klest et al., 2019; Whetten et al., 2006), the features of distress associated with MI may present specific challenges in this regard. For instance, a study by Nazarov and colleagues (2020) in a military sample recently showed that MI was associated with lower help-seeking compared to PTSD, and that degree of perceived confidentiality had an impact on their likelihood of help-seeking. In the military context in particular, potential breaches of confidentiality and trust may be more relevant than in other contexts, given for example that different helping professionals have different responsibilities with regards to reporting information to soldiers' chain of command. Further, qualitative findings from

US Veterans indicate that clients struggling with MI emphasize trust in their therapist as an important factor in treatment, and that this alliance took time and effort to establish (Purcell et al., 2016). These findings were echoed in a study we recently conducted in the context of military mental health care in Canada and the UK, in which both clients and clinicians emphasized continuity of care, time and rapport as foundational to addressing MI in therapy (Houle et al., 2019).

Once again it is important to emphasize that the above research regarding interventions in the context of MI has so far almost exclusively been conducted in the context of military PMIEs and PTSD. Indeed, given that research supporting the construct validity for MI is still underway, additional research is needed to understand how specific interventions address specific features of MI distress, both within and outside of the military context.

Limitations and Future Directions

Along with the limitations of Studies 1 and 2 so far mentioned, a number of additional points are worth highlighting here. First, due to the cross-sectional nature of our research any causal explanations with regards to the impact of PMIEs on distress cannot be determined. Longitudinal studies that properly examine the influence of stressors, moral appraisals, and dispositional risk factors on psychological outcomes are sorely needed.

In addition, much more research outside of the military context is required to fully understand the nature of MI. As noted previously, the types of PMIEs that have garnered the bulk of the research attention are likely to be confounded with traumatic events (e.g., combat, sexual assault), therefore muddying our understanding of the influence of moral appraisals on outcomes. While deployment events may not always involve trauma (e.g., making a decision to release a prisoner of war), they are often high-stakes, involving exposure to extreme human suffering or

making decisions that could seriously harm others. In Study 1, 20% of our participants indicated that their index PMIEs occurred on base. It is likely that some of these events involve trauma (e.g., sexual assault), but that some do not (e.g., feeling betrayed by leaders for making decisions that have important career or personal consequences). While in Study 2 we observed that stressor exposure (i.e., variety of stressors experienced) was not associated with moral appraisals, emotions or outcomes, different confounds likely exist here. For instance, the degree of "stakes" relevant to the stressors assessed was also likely not consistent (e.g., making medical decisions that could cause harm to others may evoke stronger moral appraisals compared to making decisions about social distancing). Indeed, given the very poor overall model fit we observed for both models tested in Study 2, it is likely that additional factors not accounted for would provide greater explanatory power as to the associations among events, appraisals and outcomes. One such factor may be *degree* of moral stressor exposure, rather than variety of experiences – a nuance that should be accounted for by future studies. Further, future research may benefit from applying different statistical approaches to better understand the associations between stressors, moral appraisals, and outcomes. For example, latent profile analysis is a person-centered approach that classifies individuals into groups based on their responses across a range of indicator variables. Previous studies in the military context have revealed important nuances in associations between MI and outcomes using this methodology (Currier, Foster, et al., 2019; Griffin et al., 2020; Smigelsky et al., 2019; Zerach et al., 2021), therefore its application outside the military context is highly warranted.

Another major limitation of this research is that we did not examine differences in associations based on demographic factors. Most importantly in this regard is gender. Indeed, given that the bulk of MI research has been conducted among military samples with deployment

history, the grand majority of participants in these studies have been male. This was also true in our Study 1 sample, where more than 80% of our sample identified as male. This is in contrast to Study 2, where over 73% of participants identified as female. Indeed, important gender differences exist with regards to emotion regulation (see review by Nolen-Hoeksema, 2012) as well as the experience and expression of moral emotions such as guilt, shame and anger (Ferguson et al., 2000; Ferguson & Crowley, 1997; Harper & Arias, 2004), therefore studies examining gender differences in the expression of MI are sorely needed. In addition, research is needed to better understand the experiences of individuals of different racial and minority identity backgrounds, as these factors likely interact to influence both vulnerability to PMIE exposure (e.g., hate crimes) and the etiology of psychological problems in their aftermath.

Regarding MI outcomes assessed, our studies focused on PTSD and depression. Given the proposed overlap with these diagnostic constructs in early conceptualizations of MI (e.g., Litz et al., 2009) and our focus on theory validation, these choices were warranted. As the research on MI has advanced, however, studies have demonstrated important associations among MI and various other outcomes (e.g., Easterbrook et al., in preparation, (Griffin et al., 2019; Hall et al., 2021; King et al., 2020). Indeed, in addition to PTSD and depression, participants in Study 1 also screened positive for panic disorder, social anxiety disorder, generalized anxiety disorder, and alcohol use disorder, supporting the need for research into outcomes beyond PTSD and depression. Moreover, there are clinical constructs that are thematically associated with MI (e.g., grief, scrupulosity), which have not yet been fully investigated.

Lastly, a more thorough assessment of the relative influence of trauma exposure and other types of stressors is likely to enhance our understanding of MI. In Study 1, we accounted for combat exposure but not other types of trauma in our analyses, thereby limiting our understanding

of the role of trauma in the associations observed. In Study 2, we did not account for the influence of exposure to trauma or other life stressors in our analyses, similarly limiting conclusions that can be drawn from these findings. Future research should account for these important variables in their study designs.

Conclusions

Nascent as the research is on MI, the literature so far supports the relevance of this construct to the clinical domain. Results of studies conducted herein further support the validity of MI by demonstrating the centrality of existential and social features of distress, as well as important patterns and themes relevant to cognitions and emotions experienced in the context of PMIEs. Moreover, Study 2 was the first to examine patterns of MI distress in the general population, and results support the importance of moral emotions in the association between moral appraisals and psychopathology outside the military context. However, it is likely that other variables not considered also provide explanatory power as to these associations. Research also appears to support the notion that a better understanding of MI would have important implications for the assessment, diagnosis and treatment of mental health problems arising from morally disturbing events.

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APPENDIX A: RECRUITMENT AND SCREENING MATERIALS

STUDY 1: Study blurb provided by clinicians to prospective participants and consent to be contacted for research participation.

Moral Injury in the Canadian Armed Forces

Combat and military experiences can take many forms. Some contain features that are morally ambiguous, and that can conflict with strongly held beliefs about what kind of person you are, how the world works, and what is right and wrong. The goal of this study is to describe the distress associated with these type of events, in relation to other types of military experiences. This study is being conducted by researchers at the University of Ottawa, and the Royal Ottawa Health Care Group.

Participation in this study would involve participating in a structured interview with a research assistant, and completing a package of questionnaires. You may also be invited to participate in a second interview with the research assistant, which will focus on the impact of the military experiences you find most difficult.

At this time, only English-speaking participants are being recruited for the study.

Are you interested in obtaining more information on this study, and potentially participating?

Yes

No

If YES - Do you give me permission to provide the research team for this study with your contact information?

Yes

No

If YES, record the following information:

Client name (first and last): ____

Phone number: ____

E-mail address: ____

STUDY 1: Recruitment flyer posted in clinic waiting room.

Interested in participating in research?

We are recruiting active duty and former service members for a study on the effects of different types of military experiences.

Participation will involve completing a structured interview, in person with a research assistant. You will also be asked to complete a package of questionnaires.

You may also be asked to come in for a second interview, about how specific military experiences have affected you.

Each study session will take approximately 60 - 90 minutes.

Parking or public transportation fees will be reimbursed.

For more information, or to participate, please contact:

Stephanie Houle, University of Ottawa
E-mail: [REDACTED]
Phone: [REDACTED]

STUDY 2: Recruitment text.

SURVEY: HOW HAS THE PANDEMIC AFFECTED YOUR LIFE?

SUBJECT: HOW HAS MORAL DECISION MAKING DURING THE PANDEMIC AFFECTED YOUR LIFE?

We want to hear about how moral decision making the COVID-19 pandemic has affected your life and your well-being.

To participate you must be over the age of 18, currently living in Canada, and speak English fluently.

You will be asked to fill out a survey at 3 different times over the next year. Each survey takes about 30 minutes to complete, and for each time point that you participate in, you will be entered into a draw to win one of four $50 Amazon gift cards!

This research is being conducted by Dr. Andrea Ashbaugh at the University of Ottawa. If you have any questions or comments about the study, please contact the researcher at [REDACTED]. This study has received ethics approval from the University of Ottawa Research Ethics Board.

Participation is on a first come first served basis.

To participate, please copy and paste the following link:
http://uottawapsy.az1.qualtrics.com/jfe/form/SV_9tNVVWSplqVv4Ed

Please feel free share this with anyone you think may be interested.

STUDY 1: Chart review forms.

CHART REVIEW FORM 1

Participant ID: _________ Date: ___/___/_____

Eligibility Screening

Currently experiencing psychosis?	YES	NO
Currently manic?	YES	NO
Current suicidal ideation (with intent)?	YES	NO
Current homicidal ideation (with intent)?	YES	NO
Competency in English?	YES	NO

Eligible for study?	YES	NO

CHART REVIEW FORM 2

Participant ID: _________ Date: ___/___/_____

Date of most recent evaluation: ____

Method of evaluation (Conducted by what type of professional, how, etc.):

____

____

____

Current medications:

____

____

Diagnoses (present and past, if available):

1. ____________________________________ Date: ___________________________________

2. ____________________________________ Date: ___________________________________

3. ____________________________________ Date: ___________________________________

4. ____________________________________ Date: ___________________________________

Treatment (present and past, if available):

1. ____________________________________ Date: ___________________________________

Treatment setting: ____________________________________

2. ____________________________________ Date: ___________________________________

Treatment setting: ____________________________________

3. ____________________________________ Date: ___________________________________

Treatment setting: ____________________________________

STUDY 1: Phone script.

Phone Script - Eligibility Screening

Hi, my name is (research assistant). I am a researcher at the University of Ottawa, and I received your contact information from the (recruitment site/method) where you indicated you may be interested in participating in research. We are working in collaboration with the clinic on a study, and are planning to conduct a small number of interviews with service members and veterans with the hope of gaining a better understanding of their military experiences, and how these have influenced their lives. Do you have 5-10 minutes for me to explain the details of the study to you?

We are interested in how people are impacted by different types of highly stressful events that may have taken place during a person's military service. This could include actions they may have witnessed, participated in, or had happen to them, which challenged or violated their beliefs, morals, and/or expectations about how people should behave and be treated. Our hope is that information from these interviews will be used to improve care provided to those who have had similar experiences.

Completing an interview is not therapy; these conversations are being used to gain more information about these issues. Participation in this study is completely voluntary and will not affect the care you receive at the clinic. If you agree to participate, we will reimburse your parking or public transportation fees on the day you come in for the study, as well as give you $50 cash as a thank you.

If you agree to participate in the study, you will come into the clinic to meet with a research assistant who will ask you questions about the distress you are currently experiencing as a result of particularly emotional or challenging military events. You may also be asked to describe the impact that the event had on you, with regards to your psychological functioning.
It is important to keep in mind that you can decide how much detail you choose to share about this event and that you can decide how much or how little you feel comfortable sharing.
Does that make sense? Would you be interested in participating?

Before I ask you some questions, do you have any questions for me?
The questions I'm going to ask you relate to potentially traumatic events – is it ok if I ask you these over the phone now?

The following is a list of questions that we ask everyone to determine eligibility for the study.

1. Have you ever deployed on a mission with the Canadian Forces? *(this question does not impact eligibility, but gives sense of potential context of traumatic event)* Y N
2. During your time in the military, have you ever experienced or learned about events that damaged your beliefs or expectations about the kind of person you are, the kind of world we live in, or right and wrong ways to treat people? Y N

- IF YES:
    - Are you currently experiencing psychological distress as a result of this experience?

- IF YES:
  - Eligible for PMIE group.

3. During your time in the military, have you ever experienced or learned about events where you or another person was threatened with actual death, serious injury, or sexual violence? Y N

- IF YES:
  - Are you currently experiencing psychological distress as a result of this experience?
    - IF YES:
      - Eligible for Non-PMIE group.
      - If yes to both #2 and #3, assign participant to PMIE group. If YES to #3 only, assign to non-PMIE group.

IF NO to both #2 and #3: Thank you for your time. Unfortunately, you are not eligible to participate in this study.

If eligible for PMIE group:

- Would you be willing to discuss one-on-one about the way these events have affected you, in terms of your thoughts, feelings, behaviors, relationships, spiritual and religious beliefs, and moral beliefs?
  - If YES: Are you available to spend two sessions of about 1.5 hours at the (recruitment site) during normal business hours?

If eligible for Non-PMIE group only:

- Would you be willing to come in and answer some questions about the impact that this event has had on you?
  - If YES: Schedule study session.

[If the client is not available to come in for a study session]: Unfortunately, you are not eligible to participate in this study. Do you have any questions about this?

APPENDIX B: CONSENT FORMS

STUDY 1: Consent form, clinic servicing Veterans.

CONSENT TO PARTICIPATE IN RESEARCH

Principal Investigator:
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[REDACTED]

Title of the study: The influence of military experiences on Canadian Forces service members' and veterans' morals and beliefs.

Invitation to Participate:

You are being invited to participate in the above mentioned study conducted by the following investigators (in alphabetical order): Andrea R. Ashbaugh, Ph.D., C.Psych, University of Ottawa (Principal Investigator), Stephanie Houle, B.A., University of Ottawa, Col. Rakesh Jetly, CD, OMM, MD, FRCPC, Canadian Forces Health Services and Institute of Mental Health Research, Jakov Shlik, MD, PhD, FRCPC, The Royal Ottawa Operational Stress Injury Clinic, and Colin Vincent, MSW, The Royal Ottawa Operational Stress Injury Clinic.

Purpose of the Study:

This study looks at the impact of war-zone and other military experiences on Canadian Forces service members' and veterans' morals, beliefs, and well-being. We believe that a better

understanding of this topic will improve the treatment and care offered to soldiers and veterans who are dealing with the impact of extremely challenging military experiences. The information provided in this study may be used to create a questionnaire of moral injury.

Participation:

During this study, you will be asked to complete a diagnostic interview with a research assistant trained in mental health, and a package of questionnaires about the impact that difficult military experiences may have had on you. This will take approximately 30-60 minutes. The questionnaires will be presented on a computer provided by the research assistant.

You may have also been invited to participate in an additional interview with the researcher. If this is the case, you will have a one-on-one interview with a research assistant trained in mental health. During this interview, you will be asked to describe, in as much detail as you like, an event you experienced during your time in the military that had an impact on your beliefs about your sense of who you are, your sense of the world, and/or your sense of right and wrong. You will be asked to reflect on thoughts, emotions and behaviours that you or others may have had at the time of the event, after the event, and those you currently have. Your interview will be audio-recorded so we can review your comments and opinions after the session. No identifying information about you will be included on the recording. The interview will take an additional 1 to 1.5 hours to complete.

Risks:

Talking about or reporting your reactions to certain events can be very emotional. There is some risk that talking about your experiences will be stressful and/or bring back some unpleasant memories. The discomfort you may experience would be similar to that experienced while talking about distressing events with another person. If you do feel distressed during the session, please inform the research assistant.
The research staff will be available to talk with you further or to refer you to treatment if necessary. You may decline to answer any question that you do not wish to answer and you may stop participating in the study at any time.

Benefits:

There are no known direct benefits to you for being in this study.

Confidentiality and Anonymity:

All information you provide for this study will be kept strictly confidential. No personal information will be included on any of the questionnaires you complete, or the audio-recording of the interview. The results of this study may be published for scientific purposes. In such cases, it is possible that your interview will be quoted in a research report, however all identifying information (e.g., names, places) will be removed. We keep your responses anonymous by giving a numeric code to your data.

In some cases, the research staff is required by law to disclose personal information about you. This would only occur in the following circumstances: If it was learned through the interview or questionnaire that you are currently a danger to yourself or others (i.e., you are suicidal and have a specific plan or express an actual plan to hurt another person), or that a child, elder, or dependent is at risk for being abused or neglected. Study information may be viewed by The Royal's Research Ethics Board and/or Research Quality Associate for quality assurance purposes.

Conservation of Data:

All interviews will be recorded on a password-protected and encrypted digital audio-recorder, and will be transferred to a password-protected computer using an encrypted USB key. Interviews will be transcribed and stored on a password-protected computer in the researcher's laboratory, located at the University of Ottawa, which is under lock and key.

Compensation:

You will be reimbursed for any parking or public transport fees you paid to get yourself to the clinic for this study, as well as 50$ for your participation.

Voluntary Participation:

You are under no obligation to participate in this study. Participation in this study is completely voluntary and will not affect the care you receive at the clinic. If you choose to participate, you can withdraw from the study at any time and/or refuse to answer any questions, without any negative consequences. All data gathered will be used unless you indicate to the researcher that you would like it to be removed from the study.

Acceptance: I, ________________________________, agree to participate in the above research study.

If you have any questions about the study, please address your questions about the research to Andrea R. Ashbaugh [REDACTED].

If you have questions concerning your rights as a study participant, you may contact the Protocol Officer for Ethics in Research, University of Ottawa, Tabaret Hall, 550 Cumberland Street, Room 154, Ottawa, ON K1N 6N5, Tel: (613) 562-5387, Email: ethics@uottawa.ca, or The Royal's Research Ethics Board, Tel: (613) 722-6521 ext. 6214.

Consent:
By signing below, you indicate that you have read and understand your participation in this study and your rights as a participant. There are two copies of the consent form, one of which is yours to keep.

____
Participant's Name (First and Last)

____
Signature

____
Date

____
Researcher's Name (First and Last)

____
Signature

____
Date

STUDY 1: Consent form, clinic servicing currently serving members.

CONSENT TO PARTICIPATE IN RESEARCH

Principal Investigator:
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Title of the study: The influence of military experiences on Canadian Forces service members' and veterans' morals and beliefs.

Invitation to Participate:

You are being invited to participate in the above mentioned study conducted by the following investigators (in alphabetical order): Andrea R. Ashbaugh, Ph.D., C.Psych, University of Ottawa (Principal Investigator), Stephanie Houle, B.A., University of Ottawa, Col. Rakesh Jetly, CD, OMM, MD, FRCPC, Canadian Forces Health Services and Institute of Mental Health Research, Jakov Shlik, MD, PhD, FRCPC, The Royal Ottawa Operational Stress Injury Clinic, and Colin Vincent, MSW, The Royal Ottawa Operational Stress Injury Clinic.

Purpose of the Study:

This study looks at the impact of war-zone and other military experiences on Canadian Forces service members' and veterans' morals, beliefs, and well-being. We believe that a better understanding of this topic will improve the treatment and care offered to soldiers and veterans

who are dealing with the impact of extremely challenging military experiences. The information provided in this study may be used to create a questionnaire of moral injury.

Participation:

During this study, you will be asked to complete a diagnostic interview with a research assistant trained in mental health, and a package of questionnaires about the impact that difficult military experiences may have had on you. This will take approximately 60 minutes. The questionnaires will be presented on a computer provided by the research assistant.

You may have also been invited to participate in an additional interview with the researcher. If this is the case, you will have a one-on-one interview with a research assistant trained in mental health. During this interview, you will be asked to describe, in as much detail as you like, an event you experienced during your time in the military that had an impact on your beliefs about your sense of who you are, your sense of the world, and/or your sense of right and wrong. You will be asked to reflect on thoughts, emotions and behaviours that you or others may have had at the time of the event, after the event, and those you currently have. Your interview will be audio-recorded so we can review your comments and opinions after the session. No identifying information about you will be included on the recording. The interview will take an additional 1 to 1.5 hours to complete.

Risks:

Talking about or reporting your reactions to certain events can be very emotional. There is some risk that talking about your experiences will be stressful and/or bring back some unpleasant memories. The discomfort you may experience would be similar to that experienced while talking about distressing events with another person. If you do feel distressed during the session, please inform the research assistant.
The research staff will be available to talk with you further or to refer you to treatment if necessary. You may decline to answer any question that you do not wish to answer and you may stop participating in the study at any time.

Benefits:

There are no known direct benefits to you for being in this study.

Confidentiality and Anonymity:

All information you provide for this study will be kept strictly confidential. No personal information will be included on any of the questionnaires you complete, or the audio-recording of the interview. The results of this study may be published for scientific purposes. In such cases, it is possible that your interview will be quoted in a research report, however all identifying information (e.g., names, places) will be removed. We keep your responses anonymous by giving a numeric code to your data.

In some cases, the research staff is required by law to disclose personal information about you. This would only occur in the following circumstances: If it was learned through the interview or questionnaire that you are currently a danger to yourself or others (i.e., you are suicidal and have a specific plan or express an actual plan to hurt another person), or that a child, elder, or dependent is at risk for being abused or neglected. Study information may be viewed by The Royal's Research Ethics Board and/or Research Quality Associate for quality assurance purposes.

Conservation of Data:

All interviews will be recorded on a password-protected and encrypted digital audio-recorder, and will be transferred to a password-protected computer using an encrypted USB key. Interviews will be transcribed and stored on a password-protected computer in the researcher's laboratory, located at the University of Ottawa, which is under lock and key.

Voluntary Participation:

You are under no obligation to participate in this study. Participation in this study is completely voluntary and will not affect the care you receive at the clinic. If you choose to participate, you can withdraw from the study at any time and/or refuse to answer any questions, without any negative consequences. All data gathered will be used unless you indicate to the researcher that you would like it to be removed from the study.

Acceptance: I, ________________________________, agree to participate in the above research study.

If you have any questions about the study, please address your questions about the research to Andrea R. Ashbaugh [REDACTED]

If you have questions concerning your rights as a study participant, you may contact the Protocol Officer for Ethics in Research, University of Ottawa, Tabaret Hall, 550 Cumberland Street, Room 154, Ottawa, ON K1N 6N5, Tel: (613) 562-5387, Email: ethics@uottawa.ca, or The Royal's Research Ethics Board, Tel: (613) 722-6521 ext. 6214.

Consent:
By signing below, you indicate that you have read and understand your participation in this study and your rights as a participant. There are two copies of the consent form, one of which is yours to keep.

____
Participant's Name (First and Last)

____
Signature

____
Date

____
Researcher's Name (First and Last)

____
Signature

____
Date

STUDY 2: Consent form.

CONSENT TO PARTICIPATE IN RESEARCH

Principal Investigator:
Andrea R. Ashbaugh, Ph.D., C.Psych
University of Ottawa
School of Psychology
136 Jean-Jacques Lussier,
Ottawa, ON K1N 6N5

Co-Investigator:
Stephanie Houle
University of Ottawa
School of Psychology
136 Jean-Jacques Ottawa, ON
Ottawa, ON K1N 6N5

Title of the study: Psychological impact of moral decision making during COVID-19

Invitation to Participate:

I am being invited to participate in the above mentioned study conducted by the following investigators: Stephanie Houle, B.A., University of Ottawa and Andrea R. Ashbaugh, Ph.D., C.Psych, University of Ottawa.

Purpose of the Study:

The purpose of this study is to examine the emotional and psychological impact of moral decisions individuals and communities are having to make during the COVID-19 pandemic, both right now and in the following months.

Participation:

This study is conducted entirely online. To be eligible to participate in this study, I must a) be 18 years or older, b) be currently living in Canada, and c) be proficient in English. Today, I will be asked to answer a series of questions about my emotions and also about moral decisions myself and others have made during the COVID-19. Once the pandemic is over (e.g., when government mandated social/physical distancing measures have been lifted) I will be contacted again to complete additional questions about moral decisions made during the COVID-19 and my emotional experiences. Three months later I will be contacted again to answer questions about my current emotional state. Each session should last no more than 30 minutes.

Risks:

The COVID-19 pandemic will affect people in many different ways. Some people will experience more distress than others when considering the impact that the pandemic has had on their lives. As such, while participating in this study, you might feel some emotional discomfort or distress in thinking about the pandemic and your emotions. If such distress does arise during the study, we encourage you to reach out to support services in your local area.
If you have experienced any distress while taking this survey we encourage you to seek out more information mood and anxiety disorders and other mental health problems at the following websites:

General Resources:

- http://www.cpa.ca/psychologyfactsheets/
- http://www.mooddisorderscanada.ca/page/resources
- https://www.bps.org.uk/public
- https://www.anxietycanada.com
- https://cmha.ca/document-category/mental-health

COVID-19 Specific Resources:

- https://cpa.ca/corona-virus/
- https://www.anxietycanada.com/covid-19/

If you are interested in seeking self-help resources, the Association of Behavioral and Cognitive Therapies maintains a searchable database of recommended books for a series of concerns, which can be found online: http://www.abct.org/SHBooks/

If you require immediate help, you can find the contact information for local crisis line centres across Canada here:
https://thelifelinecanada.ca/help/crisis-centres/canadian-crisis-centres/

Benefits:

There are no known personal benefits to participating in this study. Information gathered from this study will help researchers and clinicians better understand the impact that morally challenging events experienced during the COVID-19 pandemic have on mental health and well-being.

Confidentiality and Anonymity:

The information that I will share will remain strictly confidential and will be used solely for the purpose of this research. Identifying information, such as my email address, will be kept in a separate file from my responses and will only be linked to my responses via a participant identification number and for the purposes of contacting me should my name be selected in the draw.

Qualtrics, the online survey platform, will also be managed to protect my anonymity. The only people who will have access to the research data are the primary investigator and her research team. Results will be published in pooled (aggregate) format and presented at professional conferences and in academic journals. Anonymized datasets containing only key study variables in an aggregate format may also be made available online on a scientific research platform to promote transparency in research. To minimize the risk of security breaches and to help ensure my confidentiality it is recommend that I use standard safety measures such as signing out of my

account, closing my browser and locking my screen or device when I have completed the survey.

Conservation of Data:

The data collected from the questionnaires will be kept in a secure manner. Specifically, it will be stored on Qualtrics servers located in Canada. Electronic data will be stored on the University of Ottawa server, located on the University of Ottawa campus. More specifically, the data will be saved on a subfolder of the server which is only accessible by members of Dr. Ashbaugh's research team and University of Ottawa IT personnel who might need to manage the server. A regular backup of electronic data will be made onto a password-protected external hard drive, which will be kept in the locked data-analysis space of Dr. Ashbaugh. All identifying information (e.g., email addresses) will be destroyed 7 years after publication of results. Anonymized electronic data will be stored indefinitely. Some data may be stored on password protected laptops; only completely anonymized information will be stored in this manner.

Voluntary Participation:

My participation is voluntary. I am free to withdraw from participation at any time without any negative consequences. I can request that my data be removed from the study by e-mailing the principal investigator, Dr. Andrea Ashbaugh at [REDACTED]

Compensation:

For each portion of the study there will be a draw for 4 Amazon gift cards valued at $50. My name will only be entered in the draw for portions of the study that I begin and only if my responses indicate that I responded to the survey attentively and truthfully. My name will not be entered in a draw for portions of the study that I choose not to participate in.

Each draw will take place once each phase of the study is complete. On that day, four names will be randomly selected amongst those who have entered and the person whose name is drawn will be informed by email. To win the prize, the person must correctly answer a skill testing question. If the person cannot be reached within 14 days from the date of the draw, the prize will be awarded to the second name that is randomly selected and so on until the prize has been awarded.

The odds of winning depend on the number of eligible entries received. The prize must be accepted as awarded or forfeited and cannot be redeemed for cash.

We reserve the right to cancel the draw or cancel the awarding of the prize if the integrity of the draw or the research or the confidentiality of participants is compromised. The draw is governed by the applicable laws of Canada.

I understand that the draws will only take place once each phase of the study is complete and that only if my name is chosen, I will be contacted via the email address that I entered.

Contacts :

If I have any questions about the study, please address my questions about the research to Andrea R. Ashbaugh, [REDACTED]

If I have questions concerning my rights as a study participant, I may contact the Protocol Officer for Ethics in Research, University of Ottawa, Tabaret Hall, 550 Cumberland Street, Room 154, Ottawa, ON K1N 6N5, Tel: (613) 562-5387, Email: ethics@uottawa.ca.

Consent :

Participants should print a copy of the consent form to keep for their personal records. By clicking on the button below, you acknowledge that you have read this document and that you consent to participate:

O I agree to participate in this study
O I do not agree to participate in this study

APPENDIX C: STUDY MEASURES AND MATERIALS

STUDY 1: Semi-structured interview guide.

Participant ID: _______ Date: ___/___/_____

Moral Injury Survey—Veteran/Service Member Interview Version

INTRODUCTION: Thank you for taking the time to talk with me today. We are doing this survey to find out how different types of extremely challenging military experiences affect Canadian Forces Service Members and Veterans. The things you tell us will help us better understand how Service Members and Veterans are affected by a wide variety of military and warzone experiences, which will help us find better ways of meeting the needs of those who serve. We are particularly interested in hearing about military experiences that may have challenged your confidence or trust in the military, violated your sense of the kind of person you are or the kind of world we live in. These are things that you may have done or failed to do, or things that others did or failed to do. What you tell us about the impact of your experiences, will help us better understand how to meet the needs of those who may go through similar experiences in the future.

It is important for you to know that I don't want or need to know the exact details of the events you experienced during your military service. I am interested in hearing about the impact of those experiences, not the experiences themselves.

I know these are sensitive topics, and I want to assure you that this interview is anonymous and confidential. Your responses will be combined with many other Service Members or Veterans and will never be connected to you personally. The investigators involved in this research will not be able to identify you or contact you. Your anonymous data (not linked to your name), however, will be shared with the research team, and through publications and reports. I will not share any of what you say during this interview with anyone else, unless there is an issue of imminent risk to you or someone else.

It is possible that some of these questions will bring up strong feelings. It is important to take care of yourself and to only share as much as you feel comfortable sharing. If you feel the need to talk to someone or are interested in getting help, please let me know and we can talk about resources [*Note to interviewer: resources include the veteran's current mental health providers, calling the VAC Assistance Service 1 (800) 268-7708 or CAF Member Assistance program 1 (800) 268 7708, and local emergency rooms]*.

Do you have any questions before we begin?

---

1. During your military service, did you ever experience an event that was a serious challenge to your sense of who you are, your sense of the world, or your sense of right and wrong? This could be an experience when you thought that you or others had failed to fulfil a responsibility or duty. You may have recognized this as an extreme challenge as you were experiencing it. It could also

be that this event is extremely challenging to think about and accept, now that you've had time to reflect on it.

___YES ___NO *If NO, end the interview and give the participant the demographics questionnaire.*

2. Potentially Morally Injurious Experiences (PMIEs)

As I've mentioned, I won't be asking you for details of your military experiences but I would like to have a general understanding of what kind of experience(s) you are thinking about so I can tailor the interview to your experience(s).

I am going to start out by describing four broad categories of events that military personnel can find morally challenging, with examples of each. The four categories are: (a) events when you felt betrayed by others; (b) events when you felt that you betrayed others; (c) events when you acted in a way that you regret or didn't do what you think you should have done; and (d) events when other people acted in ways that you think were wrong or didn't do what you think they should have done. I will ask if you've experienced an event in each of these categories and if so, how often this occurred during your deployment experiences.

<table>
<tr><td colspan="2">2.1 Betrayal Others:</td></tr>
<tr><td colspan="2">While in the military, did you ever feel betrayed by other people who you once trusted? This could include feeling betrayed by the Canadian Forces, commanders, those under your command, fellow service members and/or non-military personnel. Some examples of this could be:</td></tr>
<tr><td colspan="2">- CF capabilities were used by political leaders for missions with questionable objectives (i.e. unclear how the mission or task related to protecting Canada's national interests; based on information that was false, incorrect or misleading) and harm came to you orothers as a result.

- You were directed to undertake military tasks for which you were inadequately prepared and/or inadequately resourced and this resulted in harm to you or others.

- You witnessed atrocities but you were unable to intervene due to lack of capability or legal mandate.

- You felt criticised by society (i.e. media, community, family, friends) for your involvement in mandated military actions.

- You were treated with disrespect and harmed by a fellow service members (e.g., hazing, physical, sexual, or emotional abuse).</td></tr>
<tr><td>Y</td><td>N</td></tr>
</table>

IF Yes
During your military service, how many experiences did you have that fit this description?
N=
(If previously deployed): How many of these experiences happened while you were deployed?
N=

2.2. Betrayal Self:	
While in the military did you ever feel that you betrayed other people who trusted you; this could include feeling you betrayed by the Canadian Forces, your commanders, those under your command, fellow service members and/or non-military personnel. Some examples of this could be:	
- You made a mistake or failed in a task (including decisions made in a leadership role) in which someone was harmed as a result. - You saw an immoral act (or acts) and did nothing to stop it	
Y	N

IF Yes
During your military service, how many experiences did you have that fit this description?
N=
(If previously deployed): How many of these experiences happened while you were deployed?
N=

2.3 Transgression Others
While in the military, did you ever witness other people act in ways that violated your own moral code or value-system? This could include ways they treated or behaved towards other people. Some examples of this could be:
- You witnessed or saw the aftermath of deliberate or inadvertent killing, serious wounding or maltreatment (i.e. treating the helpless with disrespect; applying unncessary or excessive violence; use of sexual violence) of non-combatants (i.e., women, children or the elderly). - You witnessed or saw the aftermath of deliberate or inadvertent killing, serious wounding or maltreatment (i.e., applying unncessary or excessive violence; use of sexual violence) of combatants outside the Rules of Engagement

<table>
<tr><td colspan="2">
- You witnessed or saw the aftermath of deliberate atrocities such as torture or disfigurement of human remains.

- You witnessed or saw the aftermath or inadvertent killing, serious wounding or maltreatment (e.g., hazing, physical, sexual, or emotional abuse) of a fellow service members.
</td></tr>
<tr><td>Y</td><td>N</td></tr>
<tr><td colspan="2">IF Yes</td></tr>
<tr><td colspan="2">During your military service, how many experiences did you have that fit this description?</td></tr>
<tr><td colspan="2">N=</td></tr>
<tr><td colspan="2">(If previously deployed): How many of these experiences happened while you were deployed?</td></tr>
<tr><td colspan="2">N=</td></tr>
</table>

<table>
<tr><td colspan="2">2.4. Transgression Self:</td></tr>
<tr><td colspan="2">While in the military did you ever act in ways that violated your own moral code or value-system? This could include ways you treated or behaved towards other people. Some examples of this could be:</td></tr>
<tr><td colspan="2">
- You killed within the Rules of Engagement.

- You participated in deliberate or inadvertent killing, serious wounding or maltreatment (i.e., treating the helpless with disrespect, applying unncecessary or excessive violence; use of sexual violence) of non-combatants (i.e., women, children or the elderly).

- You participated in deliberate or inadvertent killing, serious wounding or maltreatment (i.e., applying unnecessary or excessive violence; use of sexual violence; humiliation) of combatants outside the Rules of Engagement.

- You participated in deliberate atrocities such as torture or disfigurement of human remains.

- You participated in deliberate or inadvertent killing, serious wounding, or maltreatment (e.g., hazing, physical, sexual, or emotional abuse) of fellow service members.
</td></tr>
<tr><td>Y</td><td>N</td></tr>
<tr><td colspan="2">IF Yes</td></tr>
<tr><td colspan="2">During your military service, how many experiences did you have that fit this description?</td></tr>
<tr><td colspan="2">N=</td></tr>
<tr><td colspan="2">(If previously deployed): How many of these experiences happened while you were deployed?</td></tr>
<tr><td colspan="2">N=</td></tr>
</table>

3. Most distressing PMIEs

Enter all responses to questions in section 3 into Table 1 below

3.1. Single worst PMIE

A. Of the events that you just thought of, is there a single worst event that has been causing you the most distress recently?

Y	*N*
IF no skip to 3.3	

B. Which of the four descriptions that we have been talking about do you think it best fits into [*repeat categories and prompt with examples again if needed]*?

[Note: Participants may identify an event falling into one or more of the four categories].

3.2. Context

From the list I will read out, please pick the type of operation or context in which the event occurred?

A. Warlike operation
B. Peacekeeping or peace monitoring operation
C. Humanitarian operation
D. Border protection
E. In garrison/on base
F. Other (if they would rather not specify)

Skip to 3.4

3.3 Multiple worst PMIEs

As there isn't a single worst event, how many events are you thinking of that in the past month or so are causing you the most distress?

3.3.1. Multiple events

A. From the list I will read out, what contexts did these events occur *[repeat list from 3.2]*?

B. From the questions before [*repeat PMIE category descriptions they endorsed]* which broad descriptions do the worst events you are thinking of best fall under?

3.4. Reason for PMIE's distress

I am now going to read a list of reasons that event(s) like the ones you have been thinking of could potentially be distressing for an individual. Please chose which statement best captures the worst part of the event(s) for you.

[*Note: If there are multiple events ask for the most distressing aspect, but can input multiple if participant cannot identify single worst aspect*]

1.	You thought that you could be seriously injured or killed		
1.	You thought that someone else could be seriously injured or killed		
2.	The sights, sounds, and smells of the event (e.g., seeing dead bodies)		
3.	Someone was killed:		
	a) A friend	b) A unit member	c) A non-combatant
4.	You failed to fulfil an important duty, obligation, or moral standard		
5.	Someone else failed to fulfil an important duty, obligation, or moral standard		

[INTERVIEWER NOTES: ***Print off table on separate sheet*****]:**

Table 1: Most distressing PMIEs

Event number		Context(s) the event(s) occurred in	PMIE Category				Reason distressing (number from list)
			BO:	BS	TO	TS	
1							
Multiple	N:						

.

4. Outcomes of PMIEs

I can imagine that there were a lot of stressful things that happened during your military service and many of these experiences have shaped who you are today. However, what I'm interested in learning about in this interview is the specific impact of [*insert worst PMIEs endorsed in section 3*]. It can be difficult to make links between specific events and outcomes, so we'll do our best to figure it out together. Now, please keep in mind the specific event(s) you have been thinking of where you felt [*insert worst PMIEs endorsed in section 3*] as best you can for the following questions.

In relation to this event(s) I'm going to ask you about how it has impacted you. Please take your time answering these questions and tell me as much as you can.

[*Note to interviewer: Allow participant to respond to each of the initial prompts. Use the additional probes as needed to gather a thorough narrative*]

4.1. Remembering

- How do you feel now when you think about this event?

- How do you normally react when reminded of the experience(s) (your thoughts and feelings and behaviours)?

4.2. Self

- How has this event changed you?
  [To gather additional information, ask "What about…"]
    - The way you see or feel about yourself, others and the world
    - Your identity and who you are as a person
    - The way you care for yourself
    - Your plans for the future
    - How you are physically
    - Ability to work or your role at work
    - (if not clear How is this different from how you were before the event?)

4.3. Relationships

- How has this event changed your relationships with family, friends, romantic partners and/or co-workers?
  [To gather additional information, ask "What about…"]
    - Trust in other people
    - Dealing with authority figures
    - How close or distant you feel towards others
    - How you care for others
    - (if not clear: How is this different from how you were before the event?)

4.4. Values and spirituality

- How has this event affected the way you make sense of life and its meaning?
  [To gather additional information, ask "What about…"]
    - Your spirituality or religious beliefs (faith)
    - Your understanding of right and wrong
    - The principles that guide your life
    - (if not clear: How is this different from how you were before the event?)

4.5. Overall distress

On a scale from 0 (*not at all*) to 100 (*as bad as it could be*), how distressing and haunting is this experience currently?
(Write a number between 0 and 100) _____

4.6. Identity

On a scale from 0 (*not at all*) to 100 (*completely*), how much has this experience changed how you define yourself (your identity) now?
(Write a number between 0 and 100) _____

4.7. Protective

A. You described feeling... [*insert ways that event has affected the interviewee]*. What or who has helped you the most to cope?

B. What more do you think is needed to best promote recovery among military personnel and veterans who are overcoming the impacts of these experiences?

4.8. Treatment

Have you ever received treatment or other help for the distress you've experienced as a result of this type of event?

- If YES:
    - How long after the event did you seek treatment/help?
    - What led you to seek help?
    - What type of treatment/help did you receive?
    - (If professional help:) What type of professional provided the treatment (e.g., psychologist, chaplain)

- What helped about the treatment/help you received?

- What didn't help about the treatment/help you received?

- If NO: Why not? (e.g., fear of stigmatization, shame, avoidance)

CLOSURE. Thank you for sharing your views. We really appreciate your time and thoughtfulness. Do you have any final thoughts on the things we talked about today? [*Note to interviewer: If participant expresses significant distress or discomfort, redirect them to resources on debriefing form]*

[For the interviewer only]

Interview Summary Form

Participant ID:	Date Form Completed:
Interviewee: Patient / Clinician	City:
Date of Interview:	Site:
Transcript Recording: Yes / No	Interview completed by:
Transcript Recording #:	Additional notes attached: Yes/No

1. What were the main issues or themes that struck you during this interview?

2. Was there any information you feel you failed to obtain from the interview? Describe.

3. Was there anything that struck you as salient, interesting, illuminating or important about this interaction?

4. What are elements of the interview that could be improved (e.g., additional issues or questions to be pursued in other interviews; questions that were not well understood by the participant or interviewee)?

STUDY 1. Self-report measures.
Scales with an asterisk were not included in analyses performed in this thesis.

*PMIE Qualifying Questions

When answering the following questions, please keep in mind the event you discussed with the research assistant during your study session.

Please respond to the following statements on a scale of 1, strongly disagree, to 6, strongly agree. For each statement about the experience you identified, tell me how you much you agree or disagree with it on a scale from 1 to 6.

A.	A military authority would consider what happened to be a violation of the Rules of Engagement					
	Strongly disagree	Moderately disagree	Slightly disagree	Slightly agree	Moderately agree	Strongly agree
	1	2	3	4	5	6

B.	A military authority would view me as responsible for harm caused to someone as a result of a mistake or failure					
	Strongly disagree	Moderately disagree	Slightly disagree	Slightly agree	Moderately agree	Strongly agree
	1	2	3	4	5	6

C.	A military authority would view another person as responsible for harm to me or someone else as a result of a mistake or failure					
	Strongly disagree	Moderately disagree	Slightly disagree	Slightly agree	Moderately agree	Strongly agree
	1	2	3	4	5	6

D.	A military authority would view another person as responsible for harm to me or someone else as a result of something they did on purpose					
	Strongly disagree	Moderately disagree	Slightly disagree	Slightly agree	Moderately agree	Strongly agree
	1	2	3	4	5	6

E.	I saw something happen that was wrong and did nothing to stop it					
	Strongly disagree	Moderately disagree	Slightly disagree	Slightly agree	Moderately agree	Strongly agree
	1	2	3	4	5	6

F.	I killed within the military's definition of the Rules of Engagement					
	Strongly disagree	Moderately disagree	Slightly disagree	Slightly agree	Moderately agree	Strongly agree
	1	2	3	4	5	6

G.	I treated the helpless in a way that a military authority would consider disrespectful					
	Strongly disagree	Moderately disagree	Slightly disagree	Slightly agree	Moderately agree	Strongly agree
	1	2	3	4	5	6

H.	I witnessed another person treat the helpless in a way that a military authority would consider disrespectful					
	Strongly disagree	Moderately disagree	Slightly disagree	Slightly agree	Moderately agree	Strongly agree
	1	2	3	4	5	6

I.	I treated my fellow service members in a way that they would consider disrespectful or harmful (for example, physically or emotionally abusive behavior)					
	Strongly disagree	Moderately disagree	Slightly disagree	Slightly agree	Moderately agree	Strongly agree
	1	2	3	4	5	6

J.	I witnessed another person disrespect or cause harm to a fellow service member (for example, physically or emotionally abusive behavior)					
	Strongly disagree	Moderately disagree	Slightly disagree	Slightly agree	Moderately agree	Strongly agree
	1	2	3	4	5	6

Moral Injury Events Scale (MIES) – Canadian version

Instructions: Please circle the appropriate number to indicate how much you agree or disagree with each of the following statements regarding your experiences at any time since joining the military.

		Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
1.	I saw things that were morally wrong	1	2	3	4	5	6
2.	I am troubled by having witnessed others' immoral acts	1	2	3	4	5	6
3.	I acted in ways that violated my own moral code or values	1	2	3	4	5	6
4.	I am troubled by having acted in ways that violated my own morals or values	1	2	3	4	5	6
5.	I violated my own morals by failing to do something that I felt I should have done	1	2	3	4	5	6
6.	I am troubled because I violated my morals by failing to do something that I felt I should have done	1	2	3	4	5	6
7.	I feel betrayed by leaders who I once trusted	1	2	3	4	5	6
8.	I feel betrayed by fellow service members who I once trusted	1	2	3	4	5	6
9.	I feel betrayed by others outside the Canadian military who I once trusted	1	2	3	4	5	6

Combat Experiences Scale (CES)

The statements below are about your combat experiences during your most recent deployment. As used in these statements, the term "unit" refers to those you lived and worked with on a daily basis during deployment. Please mark how often you experienced each circumstance.

	1 Never	**2** Once or twice	**3** Several times over entire deployment	**4** A few times each month	**5** A few times each week	**6** Daily or almost daily
1. I went on combat patrols or missions.	1	2	3	4	5	6
2. I took part in an assault on entrenched or fortified positions that involved naval and/or land forces.	1	2	3	4	5	6
3. I personally witnessed someone from my unit or an ally unit being seriously wounded or killed.	1	2	3	4	5	6
4. I encountered land or water mines, booby traps, or roadside bombs (for example, IEDs).	1	2	3	4	5	6
5. I was exposed to hostile incoming fire.	1	2	3	4	5	6
6. I was exposed to "friendly" incoming fire.	1	2	3	4	5	6
7. I was in a vehicle (for example, a "humvee," helicopter, or boat) or part of a convoy that was attacked.	1	2	3	4	5	6
8. I was part of a land or naval artillery unit that fired on enemy combatants.	1	2	3	4	5	6
9. I personally witnessed enemy combatants being seriously wounded or killed.	1	2	3	4	5	6

10. I personally witnessed civilians (for example, women and children) being seriously wounded or killed.	1	2	3	4	5	6
11. I was injured in a combat-related incident.	1	2	3	4	5	6
12. I fired my weapon at enemy combatants.	1	2	3	4	5	6
13. I think I wounded or killed someone during combat operations.	1	2	3	4	5	6
14. I was involved in locating or disarming explosive devices.	1	2	3	4	5	6
15. I was involved in searching or clearing homes, buildings, or other locations.	1	2	3	4	5	6
16. I participated in hand-to-hand combat.	1	2	3	4	5	6
17. I was involved in searching and/or disarming potential enemy combatants.	1	2	3	4	5	6

Life Events Checklist (LEC-5)

PART 1

Instructions: Listed below are a number of difficult or stressful things that sometimes happen to people. For each event check one or more of the boxes to the right to indicate that: (a) it happened to you personally; (b) you witnessed it happen to someone else; (c) you learned about it happening to a close family member or close friend; (d) you were exposed to it as part of your job (for example, paramedic, police, military, or other first responder); (e) you're not sure if it fits; or (f) it doesn't apply to you.

Be sure to consider your *entire life* (growing up as well as adulthood) as you go through the list of events.

	Happened to me	Witnessed it	Learned about it	Part of my job	Not sure	Doesn't apply
1. Natural disaster (for example, flood, hurricane, tornado, earthquake)	1	2	3	4	5	0
2. Fire or explosion	1	2	3	4	5	0
3. Transportation accident (for example, car accident, boat accident, train wreck, plane crash)	1	2	3	4	5	0
4. Serious accident at work, home, or during recreational activity	1	2	3	4	5	0
5. Exposure to toxic substance (for example, dangerous chemicals, radiation)	1	2	3	4	5	0
6. Physical assault (for example, being attacked, hit, slapped, kicked, beaten up)	1	2	3	4	5	0
7. Assault with a weapon (for example, being shot, stabbed, threatened with a knife, gun, bomb)	1	2	3	4	5	0
8. Sexual assault (rape, attempted rape, made to perform any type of sexual act through force or threat of harm)	1	2	3	4	5	0
9. Other unwanted or uncomfortable sexual experience	1	2	3	4	5	0
10. Combat or exposure to a war-zone (in the military or as a civilian)	1	2	3	4	5	0
11. Captivity (for example, being kidnapped, abducted, held hostage, prisoner of war)	1	2	3	4	5	0
12. Life-threatening illness or injury	1	2	3	4	5	0
13. Severe human suffering	1	2	3	4	5	0
14. Sudden violent death (for example, homicide, suicide)	1	2	3	4	5	0
15. Sudden accidental death	1	2	3	4	5	0
16.Serious injury, harm, or death you caused to someone else	1	2	3	4	5	0
17. Any other very stressful event or experience	1	2	3	4	5	0

PART 2

If you checked anything for #17 in PART 1, briefly identify the event you were thinking of:

____

____

____

____

____

If you have experienced more than one of the events in PART 1, think about the event you consider the worst event, which for this questionnaire means the event that currently bothers you the most. If you have experienced only one of the events in PART 1, use that one as the worst event.

Of the events selected above, what is the worst event for you?

- ○ 1. Natural disaster (e.g., flood, hurricane, tornado, earthquake)
- ○ 2. Fire or explosion
- ○ 3. Transportation accident (e.g., car accident, boat accident, train wreck, plane crash)
- ○ 4. Serious accident at work, home, or during recreational activity
- ○ 5. Exposure to toxic substance (e.g., dangerous chemicals, radiation)
- ○ 6. Physical assault (e.g., being attacked, hit, slapped, kicked, beaten up)
- ○ 7. Assault with a weapon (e.g., being shot, stabbed, threatened with a knife, gun, bomb)
- ○ 8. Sexual assault (rape, attempted rape, made to perform any type of sexual act through force or threat of harm)
- ○ 9. Other unwanted or uncomfortable sexual experience
- ○ 10. Combat or exposure to a war-zone (in the military or as a civilian)
- ○ 11. Captivity (for example, being kidnapped, abducted, held hostage, prisoner of war)
- ○ 12. Life-threatening illness or injury
- ○ 13. Severe human suffering
- ○ 14. Sudden violent death (for example, homicide, suicide)
- ○ 15. Sudden accidental death
- ○ 16. Serious injury, harm, or death you caused to someone else
- ○ 17. Other
- ○ I have never experienced any of the stressful events described above.

Briefly describe the worst event (for example, what happened, who was involved, etc.).

____
____
____
____
____

Please answer the following questions about the worst event (check all options that apply):

How long ago did it happen? (please estimate if you are not sure)
____

How did you experience it?

- ○ It happened to me directly
- ○ I witnessed it
- ○ I learned about it happening to a close family member or close friend
- ○ I was repeatedly exposed to details about it as part of my job (e.g., paramedic, police, military, or other first responder)
- ○ Other, please describe:
____

Was someone's life in danger?

- ☐ Yes, my life
- ☐ Yes, someone else's life
- ☐ No

Was someone seriously injured or killed?

- ☐ Yes, I was seriously injured
- ☐ Yes, someone else was seriously injured or killed
- ☐ No

Did it involve sexual violence?

- ○ Yes
- ○ No

If the event involved the death of a close family member or close friend, was it due to some kind of accident or violence, or was it due to natural causes?

○ Accident or violence

○ Natural causes

○ Not applicable (The event did not involve the death of a close family member or close friend)

How many times altogether have you experienced a similar event as stressful or nearly as stressful as the worst event?

○ Just once

○ More than once (please specify or estimate the total # of times you have had this experience:) ____

Trauma-Related Guilt Inventory (TRGI)

Individuals who have experienced traumatic events—such as physical or sexual abuse, military combat, sudden loss of loved ones, serious accidents or disasters, etc.—vary considerably in their response to these events. Some people do not have any misgivings about what they did during these events, whereas other people do. They may have misgivings about something they did (or did not do), about beliefs or thoughts they had, or for having had certain feelings (or lack of feelings). The purpose of this questionnaire is to evaluate your response to a potential moral trauma.

(Instructions specific to PMIE group:) When answering the following questions, please keep in mind the event you discussed with the research assistant during your study session.

(Instructions specific to no-PMIE group:) When answering the following questions, please keep in mind the event you previously selected as being most distressing for you right now.

Please take a few moments to think about what happened. All the items below refer to events related to this experience. Circle the answer that best describes how you feel about each statement.

1. I could have prevented what happened.

Extremely true Very true Somewhat true Slightly true Not at all true

2. I am still distressed about what happened.

Always true Frequently true Sometimes true Rarely true Never true

3. I had some feelings that I should not have had.

Extremely true Very true Somewhat true Slightly true Not at all true

4. What I did was completely justified.

Extremely true Very true Somewhat true Slightly true Not at all true

5. I was responsible for causing what happened.

Extremely true Very true Somewhat true Slightly true Not at all true

6. What happened causes me emotional pain.

Always true Frequently true Sometimes true Rarely true Never true

7. I did something that went against my values.

Extremely true Very true Somewhat true Slightly true Not at all true

8. What I did made sense.

Extremely true Very true Somewhat true Slightly true Not at all true

9. I knew better than to do what I did.

Extremely true | Very true | Somewhat true | Slightly true | Not at all true

10. I feel sorrow or grief about the outcome.

Always true | Frequently true | Sometimes true | Rarely true | Never true

11. What I did was inconsistent with my beliefs.

Extremely true | Very true | Somewhat true | Slightly true | Not at all true

12. If I knew today - only what I knew when the event(s) occurred - I would do exactly the same thing.

Extremely true | Very true | Somewhat true | Slightly true | Not at all true

13. I experience intense guilt that relates to what happened.

Always true | Frequently true | Sometimes true | Rarely true | Never true

14. I should have known better.

Extremely true | Very true | Somewhat true | Slightly true | Not at all true

15. I experience severe emotional distress when I think about what happened.

Always true | Frequently true | Sometimes true | Rarely true | Never true

16. I had some thoughts or beliefs that I should not have had.

Extremely true | Very true | Somewhat true | Slightly true | Not at all true

17. I had good reasons for doing what I did.

Extremely true | Very true | Somewhat true | Slightly true | Not at all true

18. Indicate how frequently you experience guilt that relates to what happened.

Never | Seldom | Occasionally | Often | Always

19. I blame myself for what happened.

Extremely true | Very true | Somewhat true | Slightly true | Not at all true

20. What happened causes a lot of pain and suffering.

Extremely true | Very true | Somewhat true | Slightly true | Not at all true

21. I should have had certain feelings that I did not have.

Extremely true | Very true | Somewhat true | Slightly true | Not at all true

22. Indicate the intensity or severity of guilt that you typically experience about the event(s).

None Slight Moderate Considerable Extreme

23. I blame myself for something I did, thought, or felt.

Extremely true Very true Somewhat true Slightly true Not at all true

24. When I am reminded of the event(s), I have strong physical reactions such as sweating, tense muscles, dry mouth, etc.

Always true Frequently true Sometimes true Rarely true Never true

25. Overall, how guilty do you feel about the event(s)?

Not guilty at all Slightly guilty Moderately guilty Very guilty Extremely guilty

26. I hold myself responsible for what happened.

Extremely true Very true Somewhat true Slightly true Not at all true

27. What I did was not justified in any way.

Extremely true Very true Somewhat true Slightly true Not at all true

28. I violated personal standards of right and wrong.

Extremely true Very true Somewhat true Slightly true Not at all true

29. I did something that I should not have done.

Extremely true Very true Somewhat true Slightly true Not at all true

30. I should have done something that I did not do.

Extremely true Very true Somewhat true Slightly true Not at all true

31. What I did was unforgivable.

Extremely true Very true Somewhat true Slightly true Not at all true

32. I didn't do anything wrong.

Extremely true Very true Somewhat true Slightly true Not at all true

***Post-traumatic Cognitions Inventory (PTCI)**

We are interested in the kind of thoughts which you may have had after a moral trauma.

(Instructions specific to PMIE group:) When answering the following questions, please keep in mind the event you discussed with the research assistant during your study session.

(Instructions specific to no-PMIE group:) When answering the following questions, please keep in mind the event you previously selected as being most distressing for you right now.

Below are a number of statements that may or may not be representative of your thinking. Please read each statement carefully and tell us how much you AGREE or DISAGREE with each statement. People react to traumatic events in many different ways. There are no right or wrong answers to these statements.

1. The event happened because of the way I acted.

Totally disagree	Disagree very much	Disagree slightly	Neutral	Agree Slightly	Agree very much	Totally agree

2. I can't trust that I will do the right thing.

Totally disagree	Disagree very much	Disagree slightly	Neutral	Agree Slightly	Agree very much	Totally agree

3. I am a weak person.

Totally disagree	Disagree very much	Disagree slightly	Neutral	Agree Slightly	Agree very much	Totally agree

4. I will not be able to control my anger and will do something terrible.

Totally disagree	Disagree very much	Disagree slightly	Neutral	Agree Slightly	Agree very much	Totally agree

5. I can't deal with even the slightest upset.

Totally disagree	Disagree very much	Disagree slightly	Neutral	Agree Slightly	Agree very much	Totally agree

6. I used to be a happy person but now I am always miserable.

Totally disagree	Disagree very much	Disagree slightly	Neutral	Agree Slightly	Agree very much	Totally agree

7. People can't be trusted.

Totally disagree	Disagree very much	Disagree slightly	Neutral	Agree Slightly	Agree very much	Totally agree

8. I have to be on guard all the time.

Totally disagree	Disagree very much	Disagree slightly	Neutral	Agree Slightly	Agree very much	Totally agree

9. I feel dead inside.

Totally disagree	Disagree very much	Disagree slightly	Neutral	Agree Slightly	Agree very much	Totally agree

10. You can never know who will harm you.

Totally disagree	Disagree very much	Disagree slightly	Neutral	Agree Slightly	Agree very much	Totally agree

11. I have to be especially careful because you never know what can happen next.

Totally disagree	Disagree very much	Disagree slightly	Neutral	Agree Slightly	Agree very much	Totally agree

12. I am inadequate.

Totally disagree	Disagree very much	Disagree slightly	Neutral	Agree Slightly	Agree very much	Totally agree

13. I will not be able to control my emotions, and something terrible will happen.

Totally disagree	Disagree very much	Disagree slightly	Neutral	Agree Slightly	Agree very much	Totally agree

14. If I think about the event, I will not be able to handle it.

Totally disagree	Disagree very much	Disagree slightly	Neutral	Agree Slightly	Agree very much	Totally agree

15. The event happened to me because of the sort of person I am.

Totally disagree	Disagree very much	Disagree slightly	Neutral	Agree Slightly	Agree very much	Totally agree

16. My reactions since the event mean that I am going crazy.

Totally disagree	Disagree very much	Disagree slightly	Neutral	Agree Slightly	Agree very much	Totally agree

17. I will never be able to feel normal emotions again.

Totally disagree	Disagree very much	Disagree slightly	Neutral	Agree Slightly	Agree very much	Totally agree

18. The world is a dangerous place.

Totally disagree	Disagree very much	Disagree slightly	Neutral	Agree Slightly	Agree very much	Totally agree

19. Somebody else would have stopped the event from happening.

Totally disagree	Disagree very much	Disagree slightly	Neutral	Agree Slightly	Agree very much	Totally agree

20. I have permanently changed for the worse.

Totally disagree	Disagree very much	Disagree slightly	Neutral	Agree Slightly	Agree very much	Totally agree

21. I feel like an object, not like a person.

Totally disagree	Disagree very much	Disagree slightly	Neutral	Agree Slightly	Agree very much	Totally agree

22. Somebody else would not have gotten into this situation.

Totally disagree	Disagree very much	Disagree slightly	Neutral	Agree Slightly	Agree very much	Totally agree

23. I can't rely on other people.

Totally disagree	Disagree very much	Disagree slightly	Neutral	Agree Slightly	Agree very much	Totally agree

24. I feel isolated and set apart from others.

Totally disagree	Disagree very much	Disagree slightly	Neutral	Agree Slightly	Agree very much	Totally agree

25. I have no future.

Totally disagree	Disagree very much	Disagree slightly	Neutral	Agree Slightly	Agree very much	Totally agree

26. I can't stop bad things from happening to me.

Totally disagree	Disagree very much	Disagree slightly	Neutral	Agree Slightly	Agree very much	Totally agree

27. People are not what they seem.

Totally disagree	Disagree very much	Disagree slightly	Neutral	Agree Slightly	Agree very much	Totally agree

28. My life has been destroyed by the event.

Totally disagree	Disagree very much	Disagree slightly	Neutral	Agree Slightly	Agree very much	Totally agree

29. There is something wrong with me as a person.

Totally disagree	Disagree very much	Disagree slightly	Neutral	Agree Slightly	Agree very much	Totally agree

30. My reactions since the event show that I am a lousy coper.

Totally disagree	Disagree very much	Disagree slightly	Neutral	Agree Slightly	Agree very much	Totally agree

31. There is something about me that made the event happen.

Totally disagree	Disagree very much	Disagree slightly	Neutral	Agree Slightly	Agree very much	Totally agree

32. I will not be able to tolerate my thoughts about the event, and I will fall apart.

Totally disagree	Disagree very much	Disagree slightly	Neutral	Agree Slightly	Agree very much	Totally agree

33. I feel like I don't know myself anymore.

Totally disagree	Disagree very much	Disagree slightly	Neutral	Agree Slightly	Agree very much	Totally agree

34. You never know when something terrible will happen.

Totally disagree	Disagree very much	Disagree slightly	Neutral	Agree Slightly	Agree very much	Totally agree

35. I can't rely on myself.

Totally disagree	Disagree very much	Disagree slightly	Neutral	Agree Slightly	Agree very much	Totally agree

36. Nothing good can happen to me anymore.

Totally disagree	Disagree very much	Disagree slightly	Neutral	Agree Slightly	Agree very much	Totally agree

Dimensions of Anger Reactions (DAR)

As accurately as you can, indicate the degree to which the following statements describe your feelings and behavior. Rate the degree to which each statement applies to you.

	Not at all								*Exactly so*
1. I often find myself getting angry at people or situations.	0	1	2	3	4	5	6	7	8
2. When I get angry, I get really mad.	0	1	2	3	4	5	6	7	8
3. When I get angry, I stay angry.	0	1	2	3	4	5	6	7	8
4. When I get angry at someone, I want to hit or clobber the person.	0	1	2	3	4	5	6	7	8
5. My anger interferes with my ability to get my work done.	0	1	2	3	4	5	6	7	8
6. My anger prevents me from getting along with people as well as I would like to.	0	1	2	3	4	5	6	7	8
7. My anger has a bad effect on my health.	0	1	2	3	4	5	6	7	8

Post-traumatic Stress Disorder Checklist for DSM-5 (PCL-5)

Instructions: Below is a list of problems that people sometimes have in response to a very stressful experience.

(Instructions specific to PMIE group:) When answering the following questions, please keep in mind the event you discussed with the research assistant during your study session.

(Instructions specific to no-PMIE group:) When answering the following questions, please keep in mind the event you previously selected as being most distressing for you right now.

Please read each problem carefully and then circle one of the numbers to the right to indicate how much you have been bothered by that problem in the past month.

In the past month, how much were you bothered by:	*Not at all*	*A little bit*	*Moderately*	*Quite a bit*	*Extremely*
1. Repeated, disturbing, and unwanted memories of the stressful experience?	0	1	2	3	4
2. Repeated, disturbing dreams of the stressful experience?	0	1	2	3	4
3. Suddenly feeling or acting as if the stressful experience were actually happening again (as if you were actually back there reliving it)?	0	1	2	3	4
4. Feeling very upset when something reminded you of the stressful experience?	0	1	2	3	4
5. Having strong physical reactions when something reminded you of the stressful experience (for example, heart pounding, trouble breathing, sweating)?	0	1	2	3	4
6. Avoiding memories, thoughts, or feelings related to the stressful experience?	0	1	2	3	4
7. Avoiding external reminders of the stressful experience (for example, people, places, conversations, activities, objects, or situations)?	0	1	2	3	4
8. Trouble remembering important parts of the stressful experience?	0	1	2	3	4

9. Having strong negative beliefs about yourself, other people, or the world (for example, having thoughts such as: I am bad, there is something seriously wrong with me, no one can be trusted, the world is completely dangerous)?	0	1	2	3	4
10. Blaming yourself or someone else for the stressful experience or what happened after it?	0	1	2	3	4
11. Having strong negative feelings such as fear, horror, anger, guilt, or shame?	0	1	2	3	4
12. Loss of interest in activities that you used to enjoy?	0	1	2	3	4
13. Feeling distant or cut off from other people?	0	1	2	3	4
14. Trouble experiencing positive feelings (for example, being unable to feel happiness or have loving feelings for people close to you)?	0	1	2	3	4
15. Irritable behavior, angry outbursts, or acting aggressively?	0	1	2	3	4
16. Taking too many risks or doing things that could cause you harm?	0	1	2	3	4
17. Being “superalert” or watchful or on guard?	0	1	2	3	4
18. Feeling jumpy or easily startled?	0	1	2	3	4
19. Having difficulty concentrating?	0	1	2	3	4
20. Trouble falling or staying asleep?	0	1	2	3	4

Beck Depression Inventory-II (BDI-II)

Instructions: This questionnaire consists of 21 groups of statements. Please read each group of statements carefully, and then pick out the **one statement** in each group that best describes the way you have been feeling during the **past two weeks, including today.** Circle the number beside the statement you have picked. If several statements in the group seem to apply equally well, circle the highest number for that group. Be sure that you do not choose more than one statement for any group, including Item 16 (Changes in Sleep Pattern) or Item 18 (Changes in Appetite).

1. Sadness
0 I do not feel sad.
1 I feel sad much of the time.
2 I am sad all the time.
3 I am so sad or unhappy that I can't stand it.

2. Pessimism
0 I am not discouraged about my future.
1 I feel more discouraged about my future than I used to be.
2 I do not expect things to work out for me.
3 I feel my future is hopeless and will only get worse.

3. Past Failure
0 I do not feel like a failure.
1 I have failed more than I should have.
2 As I look back, I see a lot of failures.
3 I feel I am a total failure as a person.

4. Loss of Pleasure
0 I get as much pleasure as I ever did from the things I enjoy.
1 I don't enjoy things as much as I used to.
2 I get very little pleasure from the things I used to enjoy.
3 I can't get any pleasure from the things I used to enjoy.

5. Guilty Feelings
0 I don't feel particularly guilty
1 I feel guilty over many things I have done or should have done.
2 I feel quite guilty most of the time.
3 I feel guilty all of the time

11. Agitation
0 I am no more restless or wound up than usual.
1 I feel more restless or would up than usual.
2 I am so restless or agitated that it's hard to stay still.
3 I am so restless or agitated that I have to keep moving or doing something.

6. Punishment Feelings
0 I don't feel I am being punished
1 I feel I may be punished
2 I expect to be punished
3 I feel I am being punished

7. Self-Dislike
0 I feel the same about myself as ever.
1 I have lost confidence in myself.
2 I am disappointed in myself.
3 I dislike myself.

8. Self-Criticalness
0 I don't criticize or blame myself more than usual.
1 I am more critical of myself than I used to be.
2 I criticize myself for all of my faults.
3 I blame myself for everything bad that happens

9. Suicidal Thoughts or Wishes
0 I don't have any thoughts of killing myself.
1 I have thoughts of killing myself, but I would not carry them out.
2 I would like to kill myself.
3 I would kill myself if I had the chance

10. Crying
0 I don't cry anymore than I used to
1 I cry more than I used to
2 I cry over every little thing
3 I feel like crying, but I can't.

17. Irritability
0 I am no more irritable than usual.
1 I am more irritable than usual.
2 I am much more irritable than usual.
3 I am irritable all the time.

12. Loss of Interest

0 I have not lost interest in other people or activities.
1 I am less interested in other people or things than before.
2 I have lost most of my interest in other people or things.
3 It's hard to get interested in anything.

13. Indecisiveness

0 I make decisions about as well as ever.
1 I find it more difficult to make decisions than usual.
2 I have much greater difficulty in making decisions than I used to.
3 I have trouble making any decisions.

14. Worthlessness

0 I do not feel I am worthless.
1 I don't consider myself as worthwhile and useful as I used to.
2 I feel more worthless as compared to other people.
3 I feel utterly worthless

15. Loss of Energy

0 I have as much energy as ever
1 I have less energy than I used to have.
2 I don't have enough energy to do very much.
3 I don't have enough energy to do anything.

16. Changes in Sleeping Pattern

0 I have not experienced any change in my sleeping pattern.
1a I sleep somewhat more than usual.
1b I sleep somewhat less than usual
2a I sleep a lot more than usual.
2b I sleep a lot less than usual.
3a I sleep most of the day.
3b I wake up 1-2 hours early and can't get back to sleep.

18. Changes in Appetite

0 I have not experienced any change in my appetite
1a My appetite is somewhat less than usual.
1b My appetite is somewhat greater than usual.
2a My appetite is much less than before
2b My appetite is much greater than usual.
3a I have no appetite at all.
3b I crave food all of the time.

19. Concentration Difficulty

0 I can concentrate as well as ever
1 I can't concentrate as well as usual.
2 It's hard to keep my mind on anything for very long
3 I find I can’t concentrate on anything

20. Tiredness or Fatigue

0 I am no more tired or fatigued than usual.
1 I get more tired or fatigued more easily than usual.
2 I am too tired or fatigued to do a lot of the things I used to do.
3 I am too tired or fatigued to do most of the things I used to do.

21. Loss of Interest in Sex

0 I have not noticed any recent change in my interest in sex.
1 I am less interested in sex than I used to be.
2 I am much less interested in sex now.
3 I have lost interest in sex completely

Socio-demographic Questionnaire

1. Gender:

- ○ Man
- ○ Woman
- ○ Transgender
- ○ Other (Specify)____________
- ○ Prefer not to answer

2. Age: _____

3. What is your current marital status? (*Select one*)

- ○ Never married, not in any relationship
- ○ Never married, in a relationship
- ○ Married or living with partner
- ○ Separated/Divorced
- ○ Remarried
- ○ Widowed

3a. Total number of marriages: 0 1 2 3 4+

3b. If you are in a current relationship, which statement best describes your satisfaction with that relationship? (*Select one*)

- ○ Not at all satisfied
- ○ Somewhat satisfied
- ○ Moderately satisfied
- ○ Very satisfied

4. What is your current employment status?

- ○ Full-time ($\geq$ 40 hrs/week)
- ○ Part-time
- ○ Not regular employment
- ○ Unemployed
- ○ Retired
- ○ No employment – Full disability

5. Which do you consider your race?

- O White
- O South Asian (e.g., East Indian, Pakistani, Sri Lankan)
- O Chinese
- O Black
- O Filipino
- O Latin American
- O Arab
- O Southeast Asian (e.g., Vietnamese, Cambodian, Malaysian, Laotian)
- O West Asian (e.g., Irianian, Afghan)
- O Korean
- O Japanese
- O Other, *please specify:* _______________________________

6. What is the highest level of education that you have completed? (C*heck one)*

- O Some high school
- O Completed high school
- O Some college
- O Completed college
- O Some university
- O Completed university
- O Some graduate school
- O Master's degree
- O Doctoral degree
- O Completed graduate certificate
- O Registered Apprenticeship or other trades certificate/diploma

7. What is your current household income? (yourself + others in your household)

- O < $10,000
- O $10,000 - $20,000
- O $20,000 - $35,000
- O $35,000 - $50,000
- O $50,000 - $100,000
- O > $100,000

8. Please select all of the countries you were ever deployed on a military mission with the Canadian Armed Forces, and indicate which year(s) you served in that country.

Country:	Year(s):
O Afghanistan	___________
O Balkans	___________
O Cambodia	___________
O Congo	___________
O Cyprus	___________
O East Timor	___________
O Egypt	___________
O Ethiopia and Eritrea	___________
O Gulf War	___________

- ○ Haiti ____________
- ○ Israel ____________
- ○ Korean War ____________
- ○ Lebanon ____________
- ○ Rwanda ____________
- ○ Somalia ____________
- ○ Syria ____________
- ○ World War II ____________
- ○ Other ______________________ ____________

9. How many times have you been deployed to a war-zone? (UN/NATO tours) ______

10. What is the **total** length of time you were deployed? _______years, ________months

11. What was your typical duty when the event discussed today occurred? (*Check one that best describes all duties*)

    - ○ Combat Arms (for example, Infantry, Armor, Combat Engineer, Armour/Artillery, Special Forces)
    - ○ Combat Support (for example, Chemical Corps, Engineer, Military Intelligence, Military Police including Security Forces, Signal Corps)
    - ○ Combat Service Support (for example, Quartermaster, Ordinance, Transportation including Convoy personnel, Finance, Chaplain, Medical including Air Evacuation Crews)

12. What was your highest rank held?

    - ○ Pte-MCpl / OS-MS
    - ○ Sgt-CWO / PO2-CPO1
    - ○ Lt-Capt / SLt-Lt(N)
    - ○ Maj / LCdr and above

13. How many years of service in the CF have you completed?

    - ○ less than 5
    - ○ 6 to 10
    - ○ 11 to 15
    - ○ 16 to 20
    - ○ 21 to 25
    - ○ 26+

14. What was your branch of service?

_____ Canadian Army _____ Royal Canadian Navy

_____ Royal Canadian Air Force _____ Civilian

_____ Other ________________

15. Duty status:

_______Regular Force ________Reserves _______ Civilian

STUDY 2: Self-report measures.

Sociodemographic information:

1. Gender:

- ○ Man
- ○ Woman
- ○ Transman
- ○ Transwoman
- ○ Other (Specify)____________
- ○ Prefer not to answer

2. Age: _____

- ○ Prefer not to answer

3. What is your current marital status? (*Select one*)

- ○ Never married, not in any relationship
- ○ Never married, in a relationship
- ○ Married or living with partner
- ○ Separated/Divorced
- ○ Remarried
- ○ Widowed
- ○ Prefer not to answer

4. What is your current employment status?

- ○ Full-time
- ○ Part-time
- ○ Not regular employment (e.g., contract, freelance)
- ○ Unemployed
- ○ Retired
- ○ Student
- ○ Prefer not to answer

5a. Were you recently *unemployed* as a result of the COVID-19 pandemic?

- ○ Yes
- ○ No
- ○ Prefer not to answer

5b. Were you recently *employed* as a result of the COVID-19 pandemic?

- ○ Yes
- ○ No
- ○ Prefer not to answer

6. Are you currently working from home?

- ○ Yes
- ○ No
- ○ Prefer not to answer

7. Are you currently going to work outside of your home?

- ○ Yes
- ○ No
- ○ Prefer not to answer

8. In the district where you live, is your job considered an “essential service”?

- ○ Yes
- ○ No
- ○ Prefer not to answer

8b. If yes, what sector do you work in (e.g., health services, financial services, transport)?

____

○ Prefer not to answer

9. How many children do you have?

- ○ 0
- ○ 1
- ○ 2
- ○ 3
- ○ 4
- ○ 5 +
- ○ Prefer not to answer

10. How many people currently live in your household?

- ○ I live alone
- ○ 2
- ○ 3
- ○ 4
- ○ 5 +
- ○ Prefer not to answer

11. Which do you consider your race?

- ○ Indigenous/First Nations (Inuit, Métis, North American Indian)
- ○ Arab/West Asian (e.g., Armenian, Egyptian, Iranian, Lebanese, Moroccan)
- ○ Black (e.g., African, Haitian, Jamaican, Somali)
- ○ Chinese
- ○ Filipino
- ○ Japanese
- ○ Korean
- ○ Latin American
- ○ South Asian
- ○ South East Asian
- ○ White (Caucasian)
- ○ Other (please specify) ________________________
- ○ Prefer not to answer

12. What is the highest level of education that you have completed? (C*heck one)*

- ○ Elementary school
- ○ Some high school
- ○ Completed high school
- ○ Some college
- ○ Completed college
- ○ Some university
- ○ Completed university
- ○ Some graduate school
- ○ Master's degree
- ○ Doctoral degree
- ○ Completed graduate certificate
- ○ Registered Apprenticeship or other trades certificate/diploma
- ○ Prefer not to answer

13. What is your current household income? (yourself + others in your household)

- ○ < $10,000
- ○ $10,000 - $20,000
- ○ $20,000 - $35,000
- ○ $35,000 - $50,000
- ○ $50,000 - $100,000
- ○ > $100,000
- ○ Prefer not to answer

14. Which of the following best describes your religious affiliation?

- Christian
- Jewish
- Muslim
- Hindu
- Buddhist
- Sikh
- Spiritual but not religious
- Atheist
- Agnostic
- No affiliation
- Other ________________________
- Unsure
- Prefer not to answer

15. What province or territory do you live in?
- Alberta
- British Columbia
- Manitoba
- New Brunswick
- Newfoundland and Labrador
- Northwest Territories
- Nova Scotia
- Nunavut
- Ontario
- Prince Edward Island
- Quebec
- Saskatchewan
- Yukon

Trait measures:

Centrality of Religion Scale (CRS)

Please rate the following items on a scale from 0 (never) to 4 (very often).

1. How often do you think about religious or spiritual issues?
2. To what extent do you believe that some transcendent being(s) or some divine force exists?
3. How often do you take part in religious services or other public/organized spiritual practices?
4. How often do you engage in personal spiritual practices (e.g., praying, rituals)?
5. How often do you experience situations in which you have the feeling that some transcendent being or some divine force allows for intervention in your life?

Short Scale Anxiety Sensitivity Index (SSASI)

Please rate the following items on a scale from 0 (very little) to 4 (very much).

1. When I tremble in the presence of others, I fear what people might think of me.
2. When I feel pain in my chest, I worry that I'm going to have a heart attack.
3. When I notice my heart skipping a beat, I worry that there is something seriously wrong with me.
4. When my thoughts seem to speed up, I worry that I might be going crazy.
5. When my mind goes blank, I worry there is something terribly wrong with me.

Guilt and Shame Proneness Scale (GASP)

Instructions: In this questionnaire you will read about situations that people are likely to encounter in day-to-day life, followed by common reactions to those situations. As you read each scenario, try to imagine yourself in that situation. Then indicate the likelihood that you would react in the way described.

Please rate the following items on a scale from 1 (very unlikely) to 7 (very likely)

_______ 1. After realizing you have received too much change at a store, you decide to keep it because the salesclerk doesn't notice. What is the likelihood that you would feel uncomfortable about keeping the money?

_______ 2. You are privately informed that you are the only one in your group that did not make the honor society because you skipped too many days of school. What is the likelihood that this would lead you to become more responsible about attending school?

_______ 3. You rip an article out of a journal in the library and take it with you. Your teacher discovers what you did and tells the librarian and your entire class. What is the likelihood that this would make you would feel like a bad person?

_______ 4. After making a big mistake on an important project at work in which people were depending on you, your boss criticizes you in front of your coworkers. What is the likelihood that you would feign sickness and leave work?

_______ 5. You reveal a friend's secret, though your friend never finds out. What is the likelihood that your failure to keep the secret would lead you to exert extra effort to keep secrets in the future?

_______ 6. You give a bad presentation at work. Afterwards your boss tells your coworkers it was your fault that your company lost the contract. What is the likelihood that you would feel incompetent?

_______ 7. A friend tells you that you boast a great deal. What is the likelihood that you would stop spending time with that friend?

_______ 8. Your home is very messy and unexpected guests knock on your door and invite themselves in. What is the likelihood that you would avoid the guests until they leave?

_______ 9. You secretly commit a felony. What is the likelihood that you would feel remorse about breaking the law?

_______ 10. You successfully exaggerate your damages in a lawsuit. Months later, your lies are discovered and you are charged with perjury. What is the likelihood that you would think you are a despicable human being?

_______ 11. You strongly defend a point of view in a discussion, and though nobody was aware of it, you realize that you were wrong. What is the likelihood that this would make you think more carefully before you speak?

_______ 12. You take office supplies home for personal use and are caught by your boss. What is the likelihood that this would lead you to quit your job?

_______ 13. You make a mistake at work and find out a coworker is blamed for the error. Later, your coworker confronts you about your mistake. What is the likelihood that you would feel like a coward?

_______ 14. At a coworker's housewarming party, you spill red wine on their new cream-colored carpet. You cover the stain with a chair so that nobody notices your mess. What is the likelihood that you would feel that the way you acted was pathetic?

_______ 15. While discussing a heated subject with friends, you suddenly realize you are shouting though nobody seems to notice. What is the likelihood that you would try to act more considerately toward your friends?

_______ 16. You lie to people but they never find out about it. What is the likelihood that you would feel terrible about the lies you told?

Dimensions of Anger Reactions-Revised (DAR)

As accurately as you can, indicate the degree to which the following statements describe your feelings and behavior. Rate the degree to which each statement applies to you on a scale from 0 (not at all) to 8 (exactly so).

1. I often find myself getting angry at people or situations.
2. When I get angry, I get really mad.
3. When I get angry, I stay angry.
4. When I get angry at someone, I want to hit or clobber the person.
5. My anger interferes with my ability to get my work done.
6. My anger prevents me from getting along with people as well as I would like to.
7. My anger has a bad effect on my health.

***Brief Resilient Coping Scale (BRCS)**

Consider how well the following statements describe your behaviour and actions and rate each statement on a scale from 0 (does not describe me at all) to 4 (describes me very well).

1. I look for creative ways to alter difficult situations
2. Regardless of what happens to me, I believe I can control my reaction to it.
3. I believe I can grow in positive ways by dealing with difficult situations.
4. I actively look for ways to replace the losses I encounter in life.

COVID-19 Experiences:

COVID-19 Responsibility Scale

In the past month, please rate how strongly you agree with the following items related to the COVID-19 pandemic on a scale from 0 (not at all agree) to 4 (very much agree)

1. It is our collective duty to take action to reduce the impact of COVID-19.
2. It is my duty to follow rules set by the government related to COVID-19.
3. It is my duty to follow rules set by public health officials related to COVID-19.

COVID-19 Experiences Questionnaire

Listed below are a number of situations that people may have experienced during the COVID-19 Pandemic. For each event check one or more of the boxes to the right to indicate if a)it happened to you personally; b) you witnessed it happening to someone else; c) you learned about it happening to a close family member or close friend; d) you were exposed to it as part of your job (for example, paramedic, first responder, physician, policy maker); e) you learned about it through the media, or f) it doesn't apply to you.

1. Making decisions about whether or not to social distance
2. Making decisions related to COVID-19 that could put other people out of work
3. Making decisions that could put people at risk of getting sick or dying (e.g., making important medical decisions, asking employees to work despite risk of exposure to COVID-19)
4. Making COVID-19 related public policy decisions that could impact the health or well-being of many people
5. Making COVID-19 related public policy decisions that could have major negative impacts on the economy
6. Making decisions about whether or not to self-isolate after returning from abroad
7. Making important medical decisions because of COVID-19 that could put people at risk of getting sick or dying
8. Making decisions about how much essential supplies, such as disinfectant products, gloves, or masks, that people should buy
9. Had an important medical treatment postponed because of COVID-19
10. Have been unemployed as a result of COVID-19
11. Making decisions about whether or not to self-isolate because of flu-like symptoms
12. Have not had access to lifesaving medical devises (e.g., ventilator)

Please indicate which of these events has had the greatest impact on your life (check only one):

13. Making decisions about whether or not to social distance
14. Making decisions related to COVID-19 that could put other people out of work
15. Making decisions that could put people at risk of getting sick or dying (e.g., making important medical decisions, asking employees to work despite risk of exposure to COVID-19)
16. Making COVID-19 related public policy decisions that could impact the health or well-being of many people
17. Making COVID-19 related public policy decisions that could have major negative impacts on the economy
18. Making decisions about whether or not to self-isolate after returning from abroad
19. Making important medical decisions because of COVID-19 that could put people at risk of getting sick or dying
20. Making decisions about how much essential supplies, such as disinfectant products, gloves, or masks, that people should buy
21. Had an important medical treatment postponed because of COVID-19
22. Have been unemployed as a result of COVID-19
23. Making decisions about whether or not to self-isolate because of flu-like symptoms
24. Have not had access to lifesaving medical devises (e.g., ventilator)

How did you experience this event?

1. It happened to me directly
2. I witnessed it
3. I learned about it happening to a close family member or close friend
4. I was exposed to it as part of my job
5. I learned about it through the media

<u>Measures of distress:</u>

Moral Injury Appraisals Scale (MIAS)

Please think about the situation you just identified related to your experience with COVID-19 and rate the following statements on a scale from 1 (not at all) to 4 (very much).

1. I am troubled by morally wrong things done by other people
2. I am troubled because I saw other people do things that were morally wrong
3. I am troubled because I heard about other people doing things that were morally wrong
4. I am troubled because other people have acted against important moral rules
5. I am troubled because I did things that were morally wrong
6. I am troubled because I acted against important moral rules
7. I am troubled by morally wrong things I have done
8. I went against my own morals by failing to do something I should have done
9. I am troubled because I acted in ways that went against my own moral code or values

Post-traumatic Stress Disorder Checklist for DSM-5 (PCL-5)

Instructions: Below is a list of problems and complaints that people sometimes have in response to stressful life experiences. Please keep in mind the situation you just identified related to your experience with COVID-19.

Please read each statement carefully, then select one of the numbers to the right to indicate how much you have been **bothered** by the problem **in the past month.**

In the past month, how much were you bothered by:	*Not at all*	*A little bit*	*Moderately*	*Quite a bit*	*Extremely*
1. Repeated, disturbing, and unwanted memories of the stressful experience?	0	1	2	3	4
2. Repeated, disturbing dreams of the stressful experience?	0	1	2	3	4
3. Suddenly feeling or acting as if the stressful experience were actually happening again (as if you were actually back there reliving it)?	0	1	2	3	4
4. Feeling very upset when something reminded you of the stressful experience?	0	1	2	3	4
5. Having strong physical reactions when something reminded you of the stressful experience (for example, heart pounding, trouble breathing, sweating)?	0	1	2	3	4

6. Avoiding memories, thoughts, or feelings related to the stressful experience?	0	1	2	3	4
7. Avoiding external reminders of the stressful experience (for example, people, places, conversations, activities, objects, or situations)?	0	1	2	3	4
8. Trouble remembering important parts of the stressful experience?	0	1	2	3	4
9. Having strong negative beliefs about yourself, other people, or the world (for example, having thoughts such as: I am bad, there is something seriously wrong with me, no one can be trusted, the world is completely dangerous)?	0	1	2	3	4
10. Blaming yourself or someone else for the stressful experience or what happened after it?	0	1	2	3	4
11. Having strong negative feelings such as fear, horror, anger, guilt, or shame?	0	1	2	3	4
12. Loss of interest in activities that you used to enjoy?	0	1	2	3	4
13. Feeling distant or cut off from other people?	0	1	2	3	4
14. Trouble experiencing positive feelings (for example, being unable to feel happiness or have loving feelings for people close to you)?	0	1	2	3	4
15. Irritable behavior, angry outbursts, or acting aggressively?	0	1	2	3	4
16. Taking too many risks or doing things that could cause you harm?	0	1	2	3	4
17. Being “superalert” or watchful or on guard?	0	1	2	3	4
18. Feeling jumpy or easily startled?	0	1	2	3	4
19. Having difficulty concentrating?	0	1	2	3	4
20. Trouble falling or staying asleep?	0	1	2	3	4

Trauma Related Guilt Inventory – Global Guilt Subscale (TRGI)

When answering the following questions, please keep in mind the situation you just identified related to your experience with COVID-19.

Please take a few moments to think about what happened. The items below refer to events related to this experience. Circle the answer that best describes how you have felt over the last month.

1. I experience intense guilt related to what happened. (always true, frequently true, sometimes true, rarely true, never true)
2. Indicate how frequently you experience guilt related to what happened. (Never, seldom, occasionally, often,, always)
3. Indicate the intensity or severity of guilt that you typically experience about the event(s). (None, slight, moderate, considerable, extreme)
4. Overall, how guilty do you feel about the event(s)? (not guilty at all, slightly guilty, moderately guilty, very guilty, extremely guilty)

Anger Inventory (AI)

When answering the following questions, please keep in mind the situation you just identified related to your experience with COVID-19.

Please take a few moments to think about what happened. The items below refer to events related to this experience. Circle the answer that best describes how you have felt over the last month.

1. I experience intense anger related to what happened.
2. Indicate how frequently you experience anger related to what happened.
3. Indicate the intensity or severity of anger that you typically experience about the event(s).
4. Overall, how angry to do you feel about the event(s)?

***Religious/Spiritual Struggles Scale (RSSS)**

The items below refer to events related to this experience. Select the answer that best describes how you have felt over the last month. Please rate your response on a scale from 1 (*not at all*) to 5 (*a great deal*).

1. Wrestled with attempts to follow my moral principles.
2. Worried that my actions were morally or spiritually wrong.
3. Felt torn between what I wanted and what I knew was morally right.
4. Felt guilty for not living up to my moral standards.
5. Questioned whether life really matters.
6. Felt as though my life had no deeper meaning.
7. Questioned whether my life will really make any difference in the world.

8. Had concerns about whether there is any ultimate purpose to life or existence.
9. Struggled to figure out what I really believe about religion/spirituality.
10. Felt confused about my religious/spiritual beliefs.
11. Felt troubled by doubts or questions about religion or spirituality.
12. Worried about whether my beliefs about religion/spirituality were correct.

Depression, Anxiety and Stress Scale – 21 Depression Subscale (DASS)

Please read each statement and select a number (0, 1, 2, or 3) which indicates how much the statement applies to you over the past two weeks. There are no right or wrong answers. Do not spend too much time on any statement. The rating scale is as follows:

0- Did not apply to me at all
1- Applies to me to some degree, or some of the time
2- Applied to me to a considerable degree, or a good part of the time
3- Applied to me very much or most of the time

1. I couldn’t seem to experience any positive feelings at all.
2. I found it difficult to work up the initiative to do things.
3. I felt that I had nothing to look forward to.
4. I felt down-hearted and blue.
5. I was unable to become enthusiastic about anything.
6. I felt I wasn’t worth much as a person.
7. I felt that life was meaningless.

***Generalized Anxiety Disorder-7 (GAD-7)**

Generalized Anxiety Disorder 7-item (GAD-7) scale

Over the last 2 weeks, how often have you been bothered by the following problems?	Not at all sure	Several days	Over half the days	Nearly every day
1. Feeling nervous, anxious, or on edge	0	1	2	3
2. Not being able to stop or control worrying	0	1	2	3
3. Worrying too much about different things	0	1	2	3
4. Trouble relaxing	0	1	2	3
5. Being so restless that it's hard to sit still	0	1	2	3
6. Becoming easily annoyed or irritable	0	1	2	3
7. Feeling afraid as if something awful might happen	0	1	2	3
Add the score for each column	+	+	+	
Total Score *(add your column scores)* =				

If you checked off any problems, how difficult have these made it for you to do your work, take care of things at home, or get along with other people?

Not difficult at all __________
Somewhat difficult _________
Very difficult _____________
Extremely difficult _________

Attention check questions:

The following is meant to check your attention to the survey questions.

1. Please select the response “Not at all”
2. Please select the response “Very much”
3. Please select the response “Always”

0 Not at all
1 Sometimes
2 Often
3 Very much
4 Always

Source recruitment information:

Where did you learn about this study?

- ○ E-mail sent by researchers
- ○ E-mail sent by someone I know
- ○ Facebook
- ○ Instagram
- ○ Kijiji
- ○ Reddit
- ○ HoneyBee
- ○ Flyer posted in my community
- ○ Other ________________________

APPENDIX D: DEBRIEFING FORMS

STUDY 1: Debriefing form.

DEBRIEFING FORM

Project: Influence of military experiences on Canadian Forces service members and veterans' morals and beliefs

Principal investigator: Andrea R. Ashbaugh, PhD; School of Psychology, University of Ottawa [REDACTED]

Co-investigators: Stephanie Houle, BA, School of Psychology, University of Ottawa [REDACTED]; Col Rakesh Jetly, CD, OMM, MD, FRCPC, Canadian Forces Health Services, [REDACTED]; Jakov Shlik, MD, PhD, FRCPC, The Royal Ottawa Hospital, [REDACTED]; Colin Vincent, The Royal Ottawa Hospital, [REDACTED].

For this study, you were asked to complete a structured diagnostic interview with a research assistant, and complete several questionnaires about your experiences, emotions, thoughts, and behaviours.

You may have also been asked to tell us about a particularly difficult experience you had while in the military that challenged your beliefs, your sense of who you are, your sense of the world, and your sense of right and wrong. You were asked to reflect on thoughts, emotions, and behaviours that you or others may have had at the time of the event, after the event, and those that you may currently be experiencing.

The goal of our study is to examine the impact that different military experiences have on Canadian Forces service members and veterans. We believe that wartime experiences that influence a person's morals and beliefs have a different impact on the psychological well-being of an individual, compared to other types of military trauma. We believe that understanding these troubling experiences will help health care providers better grasp the broad range of emotional difficulties experienced by soldiers, in order to provide the best treatment possible.

We recognize that your experience today may have brought up some unwanted memories, and may have caused you some distress. We encourage you to talk to us about how you are doing after the study, and to consult the resources below should you feel you need additional support.

RESOURCES

Veterans Affairs Canada Assistance Service 24-hour mental health support: 1-800-268-7708 (For the hearing impaired, dial 1-800-567-5803)
Operational Stress Injury Social Support Program (OSISS): 1-800-883-6094 Website: www.osiss.ca
Mood Disorders Ottawa Mutual Support Group: 1-613-526-5406
Distress and Crisis Ontario: Distress line: 613-238-3311
Crisis line: 613-722-6914 or 1-866-996-0991 Website: www.dcottawa.on.ca

Tel-Aide TAO (French speaking only): Distress Line (Gatineau): 819-775-3223
Distress Line (Ottawa): 613-741-6433 Free 1-800 Line: 1-800-567-9699 Website:
www.telaideoutaouais.ca
OSI Connect mobile application for iPhone, iPad, iPod, Android and Blackberry devices. The resources on OSI Connect address challenges including post-traumatic stress and triggers, depression, anger, sleep problems, substance abuse, stress management and more. Download using AppStore or GooglePlay.

STUDY 2: Debriefing form.

DEBRIEFING FORM FOR RESEARCH PARTICIPATION

Thank you for participating in our research!

Title of the study: Psychological impact of moral decision making during COVID-19

INVESTIGATORS AND INSTITUTION:
The study you just participated in is being conducted at University of Ottawa by Andrea R. Ashbaugh, Ph.D, and Stephanie Houle, B.A.

STUDY PURPOSE AND IMPLICATIONS:

During the COVID-19 Pandemic many people were faced with a variety of moral decisions. For example, healthcare workers may have had to choose who gets a ventilator, someone returning from a vacation had to choose whether to follow directions and self-isolate. In some individuals, these moral dilemmas, especially in a high stakes situation, result in psychological distress with lasting impacts, a phenomenon that has been referred to as Moral Injury. Moral Injury is a relatively new construct and has been mostly studied in military personnel. There is little research on Moral Injury in civilian samples. The purpose of our research was to better understand Moral Injury in a civilian sample, including a better understanding of factors that might predict who is likely to experience psychological distress following such challenging decision making.

Thank you again for your participation. If you are interested in finding out more about the study and its findings or have any concerns or questions about the research itself please contact Andrea Ashbaugh, the Principal Investigator at [REDACTED].

If you have experienced any distress while taking this survey we encourage you to seek out more information mood and anxiety disorders and other mental health problems at the following websites:

General Resources:
- http://www.cpa.ca/psychologyfactsheets/
- http://www.mooddisorderscanada.ca/page/resources
- https://www.bps.org.uk/public
- https://www.anxietycanada.com
- https://cmha.ca/document-category/mental-health

COVID-19 Specific Resources:

https://cpa.ca/corona-virus/
https://www.anxietycanada.com/covid-19/

If you are interested in seeking self-help resources, the Association of Behavioral and Cognitive Therapies maintains a searchable database of recommended books for a series of concerns, which can be found online: http://www.abct.org/SHBooks/

If you require immediate help, you can find the contact information for local crisis line centres across Canada here:
https://thelifelinecanada.ca/help/crisis-centres/canadian-crisis-centres/

If you have any questions related to this study, please contact the researcher:
Andrea Ashbaugh
[REDACTED]

If you have any questions concerning your rights as a research participant please contact the Protocol Officer for Ethics in Research, University of Ottawa, Tabaret Hall, 550 Cumberland Street, Room 154, Ottawa, ON K1N 6N5.
Tel: (613) 562-5387
Email: ethics@uottawa.ca

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Please confirm that you are the only person who answered questions on this survey prior to submitting your data:

Once again, thank you for participating in our research!