

## Research Article

# Project Trauma Support: Addressing Moral Injury in First Responders

Dentry SJ

College of Rehabilitation Sciences, University of Manitoba, Winnipeg, MB Canada

Joannou M

Assistant Professor, Department of Family Medicine, Queen's University, Kingston ON, Canada

Besemann M

Lecturer, Department of Medicine, University of Ottawa, Ottawa ON, Canada

Kriellaars D

College of Rehabilitation Sciences, University of Manitoba, Winnipeg, MB Canada

### ABSTRACT

Post-traumatic Stress Disorder (PTSD) amongst military, police, Royal Canadian Mounted Police and first responder personnel often includes a moral injury component. The Project Trauma Support (PTS) program is designed to address moral injury in the emergency service personnel population. The Kessler scale of psychological distress (K6) and a new Life Challenges survey (LCS) were administered pre-and post-course to three cohorts undergoing the PTS program, providing a within-subject design examining 8 males and 8 female emergency services personnel, in 2016. All participants

were above K6 threshold for distress upon entry into program. Positive improvement was noted in both instruments, and across all K6 subdomains ( $p < .001$ ) and across 8 of the 10 LCS subdomains. The results indicate that the PTS course shows promise to provide a holistic therapy for military veterans, police, Royal Canadian Mounted Police and other emergency personnel suffering from PTSD.

**MeSh Headings/ Keywords:** PTSD; Moral injury; Veterans

### Introduction

There has been an increase in prevalence of Post-Traumatic Stress Disorder (PTSD) in military personnel returning from Afghanistan [1-3]. Studies have shown that PTSD is a major risk factor for suicide in the military veteran population [1,4]. Police and paramedics encounter similar traumatic events as the military population, and studies have shown the emergency services have an elevated risk of suicide [5-7].

Moral injury has been implicated in PTSD outcome [8], and includes anger, shame, inappropriate guilt and social alienation that manifests after witnessing or engaging in traumatic events that defy a person's sense of humanity [9]. Project Trauma Support (PTS) is a new initiative started in Canada that seeks to address moral injury associated with PTSD in Military/Veterans and First Responders (police officers, firefighters, paramedics). Moral injury is difficult to treat and also a more likely component to drive those suffering from PTSD to suicide [10-12].

Prolonged exposure therapy and cognitive processing therapy have been studied as the favoured treatments for PTSD in military veterans by Veteran Affairs in USA. These modalities have shown only modest benefits, perhaps because they do not address the physiological, psychological and sociological disintegration arising from PTSD [13]. Recently some complementary holistic approaches such as yoga, equine therapy, music, and art therapy have shown promise in the treatment of PTSD [14-16]. It has been our belief and experience that combining traditional therapeutic modalities with some of

the more experiential therapies in an intense, brief residential treatment program can have significant positive outcomes. Furthermore, shared experiences and group psychotherapy stemming from shared experiences may be invaluable when it comes to reprocessing the memories (cognitive and physical) and lasting impact of trauma, thus helping to alleviate or minimize the symptoms of PTSD [13-16].

The Project Trauma Support (PTS) program is designed to address moral injury in the emergency service personnel population. The focus of the PTS program is to provide a safe environment where defences may be dropped and authentic emotions may be processed in the presence of supportive comrades who provide unconditional positive regard through shared experiences.

This paper reports on the results of a pilot investigation of the PTS program on three cohorts of participants in 2016. Results from this project will help inform healthcare providers of potential complementary therapies to aid in the rehabilitation process.

### Methods

Participants attended a Project Trauma Support (described below) six-day residential peer-base course at Tay River Reflections Medical Spa in Perth, Ontario. Data collection consisted of online surveys, focus-group interviews, and personal journals. The surveys were conducted anonymously online through REDCap one week prior to the course and

two weeks' post course. Of the 23 course participants [16], completed the surveys in their entirety and were included for analysis (N=16, equal sex distribution). Participants provided informed consent prior to participation in the study. The human research ethics board ethically approved this study.

A validated, non-specific psychological distress scale and combined with a Life Challenges Survey [19], which identified specific life stressors, were administered [17,18]. The K-6 has been identified as a measure with excellent sensitivity to identifying individuals with severe mental illness and as such has been used by the World Health Organization World Mental Health Survey and in Canada's national household surveys [20,21]. The K6 score ranges from 0 to 24, with a threshold score used to identify general psychological distress [20].

The Life Challenge Survey, originally designed for high performance athletes and circus artists, provides a more detailed understanding of the particular areas that may cause distress and challenge in a population that experiences high stress on a daily basis. Ten domains are explored using this survey including the challenge arising from; academic or training courses, financial problems, romantic relationships, issues with relationships with family or friends, sleep, nutrition, coping mechanisms, substance use, and issues arising from the transition from their previous career into another one. The scale responses include: not a challenge; little challenge; moderate challenge but I can handle it; moderate challenge and I am having issues; high challenge but I can manage it; high challenge and I am having issues. It was important to include options in the scale that accept high challenge as something that is manageable, as many emergency services personnel handle extreme challenge daily in a positive response. This scale provides a measure of overall challenge, and also has the ability to identify areas which are proving difficult to manage. Additionally, a standard sleep hygiene survey is included within the Life Challenge survey, similar to the Athlete Sleep Screening Questionnaire and examined key components of sleep quality, quantity and latency [22].

### Project Trauma Support Program

The Project Trauma Support (PTS) residential program begins on a Sunday afternoon at 2 pm and finishes the following Friday at 2 pm. The scheduled programming runs from 7 am until 10 pm each day. The day starts with physical therapy, then meditation, then breakfast. Each day has different programming: group psychotherapy, breath work, art therapy, labyrinth exploration, music therapy, equine assisted learning, and high ropes adventure team building are some of the modalities used. The program utilizes ceremony, tradition and values clarification exercises to address the moral injury in a unique way. The atmosphere, in terms of peer connection, becomes very similar to that experienced in military basic training or police academy. The program completed three cohorts in 2016, each with a complement of military and first responder participants. This has proven to be a strategic mix in that participants hold great respect for the differences in experience of the others, but also come to realize that ultimately, all have the same hopes and fears. Each cohort has been either all men or all women.

This is to avoid the possibility of new romantic relationships developing which could distract from the work and also because many of those who suffer from PTSD have been victims of sexual trauma. Applicants may self-refer, or may be referred by their friends, organizations or mental health providers. The program leaders are physicians and military/first responder peers who have previously completed the program. Seeing peers who have had the same PTSD diagnosis now emerging as strong role models in post-traumatic growth is very encouraging to the participants. Peer leaders also further their own personal growth and healing by being involved.

### Statistical Analysis

For this within-subjects design, we employed paired t-tests (two sided) to evaluate changes over time in overall scores of the two surveys. Further, we performed exploratory analysis of the sub-items of the surveys (6 for K6, and 10 for LCS) using paired t-tests without multiple comparison correction. Pearson correlation was used to examine the association between the two surveys. The alpha level was set to 0.05.

### Results

Consistent with the PTSD requirement for participation in the program, all of the participants at entry scored over the K6 threshold of 13 for psychological distress. Over the course of the program, participants showed a significant ( $p < 0.001$ ) and substantial (6.4 point, 27% reduction) improvement in the overall K-6 score (Table 1). All but one participant reduced their overall K6 score over the course of the program. As a group, there was a significant improvement in each of the six subdomains of the K6 instrument (Table 1). After completion of the course, the number of participants above the K6 threshold reduced to 9.

Over the course of the program, there was a significant and substantial improvement in the overall score of the Life Challenges Survey (Table 2). The overall score improved by 32% ( $p < 0.001$ ) with all 16 participants reporting reduction in perceived challenges. Significant positive changes were observed in 8 of 10 sub-domains (Table 2). A score of 3 or less on the LCS sub-domain scale would correspond to a moderate or lower challenge level with an adequate management of that challenge. At entry to the program, the only challenge below this

**Table 1:** Pre-post K6 and K6 sub-domain scores. A reduction in the K6 Overall score is an improvement, whereas for the sub-domains an increase is associated with a beneficial change.

	Pre		Post		p-values
	Mean	SD	Mean	SD	
K6 Score	20.5	4.5	14.06	4.14	<0.001
Sub-Domains					
Nervousness	2.38	0.72	3.06	0.77	0.003
Hopeless	2.81	0.83	3.88	0.81	<0.001
Restless	2	0.82	3.06	1.12	<0.001
Depressed	3.19	1.11	4.38	0.72	0.001
Effort	2.19	0.91	3.56	0.96	<0.001
Worthless	2.94	1.39	4	0.97	0.002

**Table 2:** Pre-post Overall LCS and sub-domains scores. A reduction in scores is associated with a beneficial change. An average score of 3 or less reflects a moderate or lower challenge with adequate management of the challenge.

	Pre		Post		p-values
	Mean	SD	Mean	SD	
LCS Score	46	8.4	33.44	10.5	<0.001
Sub-Domains					
Academic	5.5	2	5.63	2.03	0.429
Financial	3.69	1.78	2.69	1.49	0.006
Romantic	4.75	1.65	3	1.93	<0.001
Family	4.63	1.36	2.88	1.2	<0.001
Friends	4.38	1.45	3.06	1.06	0.001
Sleep	5.56	0.73	3.69	1.4	<0.001
Nutrition	4.06	1.84	2.75	1.34	0.002
Coping	5.44	0.89	3.06	1.29	<0.001
Substance	3.06	2.38	3	2.58	0.465
Transition	4.94	2.17	3.69	2.06	0.043

threshold was substance use, by the end of the program there were 7 sub-domains self-reported at 3 or lower. The highest-ranking challenges were sleep and general coping. Sleep and general coping sub-domains revealed the largest reductions over the course of the program. For the sleep sub-domain, 14 of 16 participants demonstrated dramatic reductions in terms of level of challenge and management of this stressor. Eleven participants ranked sleep as a high challenge with difficulty managing at the outset of the program, and this reduced to only two participants identifying sleep in this category after the program.

There was a moderate correlation between the K-6 and the Life Challenges Survey scores ( $r=0.6$ ,  $P=0.014$ ).

### Focus-group Interviews and Journals

The majority of the participants stated that the program has been transformational for them. Some participants at the beginning of the course expressed how they felt that they were not worthy of love and compassion, and by the end of the course they began to state that they felt worthy of these things, which is corroborated in their K6 results. Most of the participants admitted to feeling very anxious about enrolling in the Project Trauma Support program, but then found they were put at ease within the program. The majority of the participants indicated the program was a much-needed sanctuary that was difficult to leave once the program finished.

Many had spent considerable hours in bed each day in the weeks leading up to the program due to poor sleep, depression and lack of motivation, and were then quite surprised that they could remain engaged with the demanding physical and mental pace. 14 of 16 indicated a dramatic reduction in sleep problems in the LCS survey (11 indicating high stress and very difficult for managing it) and after this program it reduced to 2 people in the same category.

### Discussion

The positive adaptations demonstrated in both the non-

specific K-6 and specific Life Challenge surveys suggest that the Project Trauma Support approach provides an effective program for PTSD in first responders.

All participants demonstrated K6 scores above threshold (13) for severe psychological distress upon entry to the program, consistent with substantial symptomology related to PTSD. After completion of the program, half of the group had K6 scores below the severe distress threshold, all but one of the participants had reductions in their K6 scores, and all but one had reductions in the LCS overall scores. These findings are impressive, and demonstrates that the participant receptivity to the program was very high.

The PTS program was designed in part to address the issues of moral injury that accompanies PTSD, and the tools that were used to assess participants (K6 and LCS) revealed that some of the symptomology associated with moral injury such as social alienation was improved as there were substantial improvements in LCS relationships sub-domains (friend, family and romantic), as well as improvement in the feelings of worthlessness, hopelessness and depression in the K6 sub-domains that are often associated with guilt and shame.

The K6 and LCS surveys were purposefully administered two weeks after the completion of the program. This delayed assessment was designed to reduce the possibility of participant reactivity that might exist at the end of the PTS program by allowing the participants a period of readjustment to daily life routines before they provided their self-reports. Longer term follow up is required to ascertain the persistence of the beneficial effects of the program.

It was not surprising that sleep was identified as the highest-ranking challenge for the participants, as sleep disturbances are well-identified in people suffering from PTSD [23,24]. Sleep disturbances (duration, latency, and quality) are well known to negatively impact the ability to manage stress, and stress and anxiety are known to negatively influence sleep [24]. As such, it was a very important finding that there were overall dramatic improvements in LCS sleep scores, with 14 of 16 participants showing improvements over time. These findings were confirmed by participant commentary in focus groups and journals, as well as in the sleep hygiene survey results.

The non-specific K6 survey provides an indication of the severity of psychological distress without providing insight into the specific contributing factors. By combining the Life Challenges Survey with the K6, insight into the specific factors contributing to distress were identified. Even though all participants were characterized as having severe psychological distress by the K6 at entry to program, the individual factors identified by the LCS were highly individualized. This would suggest that generic approaches to the treatment of PTSD may be limiting, and that programs that provide for individualized therapy would be more successful. Further study is indicated in which specific and non-specific instruments are used in a tailored treatment approach.

A number of limitations of this study need to be identified. First, this was a relatively small sample size with one specific occupational background. Second, there were a number of

participants that did not complete the survey instruments which may have resulted in a responder bias of the results. Visual inspection of the partial survey results did not reveal a pattern of non-response to program, further analysis of these participants is warranted. The results are limited to the specific domains that the two survey tools measure, and as such other effects (beneficial or detrimental) may not have been detected. Finally, other socio-demographic factors may have impacted the results such as family structure, gender, and employment status and these needs to be considered in future studies.

## Conclusions

In summary, Project Trauma Support has developed a novel residential, experiential program that shows promise in alleviating the symptoms and disability caused by PTSD in first responders and military personnel. The short duration and utilization of peer support with medical supervision and guidance make the program quite cost effective. In addition, the short time away from families and loved ones makes the program more appealing than more prolonged hospital based programs. Utilizing a variety of therapies and modalities increases the chance of effectively reprocessing experiences, and imparting tools that may be applied to symptom control in the future. Further studies are needed to investigate long term outcomes and applicability to more diverse groups.

## Funding

Funding provided by Great West Life, Investors Group, PowerCorp, and True Patriot Love Foundation, with Support from the Mood Disorders Society of Canada.

## References

- McKinney J, Hirsch J, Britton P. PTSD symptoms and suicide risk in veterans: Serial indirect effects via depression and anger. *J Affect Disord.* 2014; 214: 100-107.
- Thomas JL, Wilk JE, Riviere LA, McGurk D, Castro CA, et al. Prevalence of mental health problems and functional impairment among Active Component and National Guard soldiers 3 and 12 months following combat in Iraq. *Arch Gen Psychiatry.* 2010; 67: 614-623.
- Wells TS, LeardMann CA, Fortuna SO, Smith B, Smith TC, et al. A prospective study of depression following combat deployment in support of the wars in Iraq and Afghanistan. *Am J Public Health.* 2010; 100: 90-99.
- Jakupcak M, Cook J, Imel Z, Fontana A, Rosenheck R, et al. Posttraumatic stress disorder as a risk factor for suicidal ideation in Iraq and Afghanistan war veterans. *J Trauma Stress.* 2009; 22: 303-306.
- Violanti JM, Robinson C, Chen R. Police suicide: A national analysis. *Int J Emerg Ment Health.* 2014; 15: 289-298.
- O'Hara AF, Violanti JM, Levenson RL, Clark RG. National police suicide estimates: Web surveillance study III. *Int J Emerg Ment Health.* 2013; 15: 31-38.
- Paillas RM, Follette VM, Perumean-Chaney SE. Occupational stress and psychological functioning in law enforcement officers. In L. Territo & J. D. Sewell (Eds.), *Stress management in law enforcement.* Durham, NC: Carolina Academic Press. 2013; 141-156.
- Litz BT, Stein N, Delaney E, Lebowitz L, Nash WP, et al. Moral injury and moral repair in war veterans: A preliminary model and intervention strategy. *Clin Psychol Rev.* 2009; 29: 695-706.
- Stein NR, Mills MA, Arditte K, Mendoza C, Borah AM, et al. A scheme for categorizing traumatic military events. *Behav Modif.* 2012; 36: 787-807.
- Kerr L. Foucault and the care of the self: Educating for moral action and mental illness, *Philosophy of Education.* 2001, Urbana: University of Illinois. 2002.
- Nazarov A, Jetly R, McNeely H, Kiang M, Lanius R, et al. Role of morality in the experience of guilt and shame within the armed forces. *Acta Psychiatr Scand.* 132: 4-19.
- Bryan AO, Bryan CJ, Morrow CE, Etienne N, Ray-Sannerud B. Moral injury, suicidal ideation, and suicide attempts in a military sample. *Traumatology.* 2014; 20: 154-160.
- van der Kolk BA, Stone L, West J, Rhodes A, Emerson D, et al. Yoga as an adjunctive treatment for posttraumatic stress disorder: A randomized controlled trial. *J Clin Psychiatry.* 2014; 75: e559-e565.
- Bhatnagar R, Phelps L, Rietz K, Juergens T, Russell D, et al. The effects of mindfulness training on post-traumatic stress disorder symptoms and heart rate variability in combat veterans. *J Altern Complement Med.* 2013; 19: 860-861.
- Ugurlu N, Akca L, Acarturk C. An art therapy intervention for symptoms of post-traumatic stress, depression and anxiety among Syrian refugee children. *Vulnerable Child Youth Stud.* 2016; 2: 89-102.
- Yorke J, Nugent W, Strand E, Bolen R, New J, et al. Equine-assisted therapy and its impact on cortisol levels of children and horses: A pilot study and meta-analysis. *Early Child Development and Care.* 2013; 183: 874-894.
- Kessler RC, Andrews G, Colpe LJ, Hiripi E, Mroczek DK, et al. Short screening scales to monitor population prevalences and trends in non-specific psychological distress. *Psychol Med.* 2002; 32: 959-976.
- Kessler RC, Barker PR, Colpe LJ, Epstein JF, Gfroerer JC. Screening for serious mental illness in the general population. *Arch Gen Psychiatry.* 2003; 60: 184-189.
- Dentry-Travis SJ, Kriellaars D. Mental durability during an Antarctica expedition, presented at the Canadian Psychological Association conference, Victoria, BC. 2016.
- Kessler RC, Andrews G, Colpe LJ, Hiripi E, Mroczek DK, et al. Short screening scales to monitor population prevalences and trends in non-specific psychological distress. *Psychol Med.* 2002; 32: 959-976.
- Sunderland M, Slade T, Stewart G, Andrews G. Estimating

- the prevalence of DSM–IV mental illness in the Australian general population using the Kessler Psychological Distress Scale. *Aust N Z J Psychiatry*. 2011; 45: 880-889.
22. Samuels C, James L, Lawson D, Meeuwisse W. The Athlete Sleep Screening Questionnaire: a new tool for assessing and managing sleep in elite athletes. *Br J Sports Med*. 2016; 50: 418-422.
23. Germain A. Sleep disturbances as the hallmark of PTSD: Where are we now? *Am J Psychiatry*. 2013; 170: 372-382.
24. Harvey AG, Jones C, Schmidt DA. Sleep and posttraumatic stress disorder: A review. *Clin Psychol Rev*. 2003; 23: 377-407.

**ADDRESS FOR CORRESPONDENCE:**

Joannou M, Assistant Professor, Department of Family Medicine, Queen's University, Kingston ON, Canada, E-mail: [mhejoannou@gmail.com](mailto:mhejoannou@gmail.com)

*Submitted 04 April, 2017*

*Accepted 28 April, 2017*