

## **[MCKINNON] Improving cognitive functioning in public safety personnel with PTSD and related conditions**

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**Priority Research Area:** Mental and behavioural diseases, health care delivery

**Relevant PSP Populations:** Emergency dispatchers, correctional officers, police officers, firefighters, paramedics, and emergency medical technicians

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**What was the issue:** Urgent calls exist to address posttraumatic stress injuries, including posttraumatic stress disorder (PTSD), among public safety personnel (PSP; e.g., firefighters, police, corrections workers, paramedics) in Canada. Critically, PTSD is associated with changes in cognition (e.g., difficulties with memory, attention, organization, planning) that interfere with the ability of PSP to engage in everyday activities, such as participation in work and family life. These difficulties also impact negatively on the outcome of mental health treatments, including psychological interventions and pharmacological treatments. To date, however, no treatment interventions exist to address cognitive difficulties among PSP with PTSD.

**What was the aim of the study?** Goal Management Training (GMT) is a nine-session intervention aimed at improving cognitive difficulties. It has already been shown to be highly effective in other medical conditions (e.g., individuals with traumatic brain injuries) where treatment with GMT has resulted in durable improvements in memory, attention, and in completing complex tasks, such as organization and planning. To date, however, PSP with PTSD have not had the opportunity to benefit from it. Accordingly, the aim of the study was to examine the effectiveness of GMT in reducing cognitive difficulties (i.e., difficulties with attention and planning) and improving functional outcomes (e.g., return to work, social, and family functioning) in PSP with PTSD.

**How was the study conducted?** PSP with PTSD completed clinician-administered assessments designed to assess their cognition. Participants also completed questionnaires on their perceived cognitive difficulties, real world functioning, PTSD symptoms, and other mental health symptoms. Following this initial assessment, participants were randomized to either participate in GMT immediately or were assigned to a nine-week waiting period. Following participation in GMT and the waiting period, participants were assessed again on the same clinician-administered assessments and self-report questionnaires. Participants assigned to the waiting period were then offered the opportunity to participate in GMT.

**What did the study find?** The results of the study demonstrate significant improvements on several of the clinician-administered assessments of cognition. Critically, PSP who were in the GMT group improved on cognitive measures of verbal recall, executive functioning (e.g., tasks involving organization and planning), mental flexibility, and on measures of short- and long-term verbal memory, in comparison to those in the waitlist group.

Moreover, when comparing the groups on measures of perceived cognitive difficulties, functioning, PTSD symptoms, and other mental health indicators (e.g., depression, anxiety), PSP who participated in GMT showed significant improvements across domains compared to the waitlist group. These findings are important as they suggest that the cognitive difficulties participants noticed prior to beginning GMT (e.g., forgetting things, difficulties with paying attention during conversations, etc.) improved following GMT, but did not improve for those in the waitlist group. Critically, individuals who participated in the GMT group also experienced improvements in their daily functioning (e.g., household functioning, socializing, etc.), and in their symptoms of PTSD and other co-morbid mental health conditions.

**What are the implications of this study?** This study highlights the urgent need to trial interventions aimed at improving cognitive difficulties among PSP with PTSD. In line with our previous findings implementing GMT for other mental health conditions, PSP demonstrated an improvement in several clinician-administered cognitive measures. Moreover, participants reported improvement in their ability to perform real-world cognitive tasks and in their overall functioning, effects that were accompanied by a reduction in PTSD symptoms. These findings point towards GMT as a useful intervention to address the cognitive difficulties associated with PTSD, and as an important tool to improve real-world functioning (e.g., on the job or at home) in PSP with PTSD. Moreover, these findings have wider implications for policies associated with a return to work following work-related PTSD injuries.

**What are the key messages?** Cognitive difficulties and difficulties with real-world functioning are important therapeutic targets in PSP with PTSD, as these challenges negatively influence treatment outcomes for PTSD, return to work, and daily functioning. GMT is an adjunctive treatment intervention that shows promise in improving objective and perceived cognitive difficulties, real-world functioning and symptoms of PTSD among PSP with PTSD. Further work will be required to assess the impact of this treatment on brain functioning and on real-world outcomes over time and following treatment for PTSD.

#### **Provide a list of potential target audiences for this research**

- Public safety personnel with PTSD or other mental health symptoms
- Public safety personnel workplaces and their administrations
- Public safety personnel associations (e.g., Public Services Health and Safety Association, Canadian Institute for Public Safety Research and Treatment, Canadian Institute for Military and Veterans Health Research, the Ontario Association of Fire Chiefs, Project Trauma, etc.).
- Workplace Safety & Insurance Board
- Policy Makers
- Government
- The clinical and scientific communities at large