

PATIENT

JT is a 32-year-old male who has recently returned from a tour in Afghanistan where he routinely used overpressure weapons and is experiencing difficulty with concentration, sustaining attention, time management, and tolerance of frustration. He noticed these symptoms recently when beginning his PhD program in neuropsychology and is finding it to impact his academic performance. The CLQT was used to assess JT's current level of cognitive linguistic function and the results indicate a mild attention deficit, moderate difficulty with executive function, and language and visuo-spatial skills that are WNL. It is recommended that JT see a neurologist for evaluation and any necessary brain imaging in order to discuss potential diagnoses. Due to his frequent exposure to overpressure weapons, he should routinely follow-up with the neurologist to monitor symptoms. In addition, it is recommended that JT seek out a psychologist to discuss his tours and symptoms, as well as how these factors impact his day-to-day functioning.

INTERVENTION

	<p>Tx 1 – Cognitive Orientation to Occupational Performance (CO-OP)</p> <p>Dawson, D. R., A. Binns, M., Hunt, A., Lemsy, C., & Polatajko, H. J. (2013). Occupation-based strategy training for adults with traumatic brain injury: A pilot study. <i>Archives of Physical Medicine and Rehabilitation</i>, 94(10), 1959–1963. https://doi.org/10.1016/j.apmr.2013.05.021</p>	<p>Tx 2 – Cognitive Symptom Management and Rehabilitation Therapy (CogSMART)</p> <p>Twamley, E. W., Jak, A. J., Delis, D. C., Bondi, M. W., & Lohr, J. B. (2014). Cognitive Symptom Management and rehabilitation therapy (cogsmart) for veterans with traumatic brain injury: Pilot randomized controlled trial. <i>Journal of Rehabilitation Research and Development</i>, 51(1), 59–70.</p>
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		https://doi.org/10.1682/jrrd.2013.01.0020
Rationale for tx approach	<ul style="list-style-type: none"> - There is already evidence on meta-cognitive training on transfer effects, but not far transfer. - Aiming to assess if training needs to be conducted in meaningful real-world contexts in order to achieve far transfer to everyday life activities; therefore, using an adaptation of CO-OP. 	<ul style="list-style-type: none"> - Aiming to evaluate the success of CogSMART's 12-week compensatory training in aiding individuals with mild to moderate TBI with post-concussive symptoms and return to work.
Participants (e.g., number, age, concomitant disorders, similar characteristics to your client?)	<ul style="list-style-type: none"> - 13 participants between the ages 24-60 years old (7M, 6F) - Participants mostly had moderate to severe TBI without a significant neurologic or psychiatric history. They exhibited executive dysfunction on initial testing and were able to identify specific day-to-day goals. - Similarities to the client include: age (32), TBI severity (mild-moderate), sex (M), and identification of goals (PHD program success, attention, time management, concentration) 	<ul style="list-style-type: none"> - 34 unemployed veterans seeking work with a mean age of 32 years old. A majority of participants were male, as well as members of ethnic minority groups. In addition, a majority of injuries were contact, not blast. - Participants had mild to moderate TBI and an impairment in at least one neuropsychological domain. - Similarities to the client include: age (32), sex (male), TBI severity (mild-moderate)
Methods, inc. e.g., frequency of tx, who provided tx	<ul style="list-style-type: none"> - Two 1 hr. occupation-based strategy training sessions per week for 10 weeks - CO-OP was modified to be appropriate for adults, include workbooks and a generalization package. - Intervention was administered by an OT or trained paraprofessional supervised by an OT. - Sessions were comprised of a review of meta-cognitive strategies, application of strategies to target goals, guided discovery, and development of subgoals. 	<ul style="list-style-type: none"> - Two groups: (1) supported employment and CogSMART intervention (2) enhanced supported employment - All services and intervention were conducted by two employment specialists at a location chosen by the participant - CogSMART was delivered for 1 hr. per week for 12 weeks (treatment group) - Enhanced supported employment was delivered twice per week (both groups) -

Threats to internal validity (fatal flaws)	<ul style="list-style-type: none"> - This study assessed a small sample size. - The control group did not receive any form of treatment. - The act of setting goals may have addressed potential problems for the control group and reduced the difference between both group's outcome. 	<ul style="list-style-type: none"> - This was a small pilot study with 16% dropout. - The intervention group and control group were not age-matched. - The outcome assessment was not blinded and there were potential confounds with therapist factors.
What was measured? (Dependent variables) – validity? Reliability?	<ul style="list-style-type: none"> - Primary outcome: Canadian Occupational Performance Measure – Identifies target activities and uses a Likert scale to assess performance and satisfaction of trained and untrained goals pre and post intervention. - Secondary outcome: far transfer effects were measured using Mayo-Portland Adaptability Inventory-4 Participation Index (M2PI) for participation changes in everyday life, Dysexecutive Questionnaire (DEX) for everyday impact of executive disfunction changes, and Assessment of Motor and Process Skills (AMPS) for performance changes. - Validity: Yes - Reliability: Yes 	<ul style="list-style-type: none"> - Wide Range Achievement Test-3rd edition (WRAT-3) measures premorbid IQ - Memory for Intentions Screening Test (MIST) measures prospective memory - Wechsler Adult Intelligence Scal-3rd edition measures attention and working memory - California Verbal Learning Test-2nd edition (CVLT-II) measures verbal learning and memory - Delis-Kaplan Executive Function System (D-KEFS) measured executive functioning - Validity: Yes - Reliability: Yes
Type of study	<ul style="list-style-type: none"> - Partially randomized pilot-controlled trial 	<ul style="list-style-type: none"> - Pilot randomized controlled trial
Level of evidence	<ul style="list-style-type: none"> - This is level II evidence; however, it is important to note that the study was only partially randomized. 	<ul style="list-style-type: none"> - This is level II evidence
Statistical significance?	<ul style="list-style-type: none"> - Significant difference in performance ($P < 0.05$) and satisfaction ($P < 0.01$) for untrained goals post-intervention. - Significant difference found with M2PI for untrained goals post-intervention. 	<ul style="list-style-type: none"> - Significant improvements in post-concussive symptoms ($P = 0.01$), as well as prospective memory performance ($P = 0.05$) post-treatment.
Clinical significance?	<ul style="list-style-type: none"> - Yes, the study results showed improvement in both trained and 	<ul style="list-style-type: none"> - Yes, the study results showed improvement in both post-

	untrained tasks post-treatment, which indicates generalization.	concussive symptoms and memory post-treatment, as well as reduction in PTSD and depression symptoms.
Fit for your client's internal evidence?	- Yes, this research is relevant to the client's age, sex, and TBI severity, as well as the likelihood that he will be able to identify meaningful goals related to his PhD program and academic challenges.	- Yes, this research is relevant to the client's age, sex, TBI severity, and veteran status.

The intervention method most appropriate for JT is Cognitive Orientation to Occupational Performance (CO-OP). The research provides evidence for this method's success in improving performance and satisfaction in regards to participants with similar ages, sex, and TBO severity. In addition, CO-OP allows for the flexibility of the patient to identify their own goals, which will be extremely beneficial for JT to tailor his therapy to specifically support his academic success. Since this method was also found to support generalizability, JT can apply his skills and see improvements in other aspects of his life other than the PhD program. On the other hand, Cognitive Symptom Management and Rehabilitation Therapy (CogSMART) would not be as appropriate of a selection for JT. The research for CogSMART matches the client's internal evidence in terms of age, sex, and TBI severity; however, it focused heavily on the unemployment aspect and the treatment approach would not offer the same flexibility in goal setting as the CO-OP approach.

OUTCOME

Long term goal - JT will self-report an increase in performance and satisfaction in relation to untrained academic goals.

Short term goal 1 – JT will identify appropriate goals in 2 out of 3 opportunities within a session with minimal verbal prompting.

Short term goal 2 – JT will apply the goal, plan, do, check outline of co-op with 80% accuracy given minimal to moderate visual cueing and verbal redirection to task.

Short term goal 3 – JT will outline a task and complete it with an exam-like time constraint with 80% accuracy given minimal visual cueing and verbal redirection to task.

Treatment session objective 1: JT will apply the goal, plan, do, check outline of co-op with 80% accuracy given minimal to moderate visual cueing and verbal redirection to task.

Objective 1 Methods: The clinician will present the client with a graphic organizer that lays out the goal, plan, do, and check components of the treatment approach. The client will be prompted to identify a quick and doable goal that he will be expected to achieve within the session, such as completing a crossword puzzle, homework assignment, reading comprehension task, etc. Once the goal has been selected, the client will break down the goal into smaller steps or stages. Using a numbered list, he will list out all required steps. For example, to do a crossword puzzle, he would need to choose the ‘across’ or ‘down’ section to tackle first and for each stimulus he would repeat the steps of: counting the number of spaces, write that number next to the clue, read the clue, write out potential answers, find the answer with the appropriate number of letters and write that answer in the puzzle boxes. During the goal and plan portions of this activity, the clinician may utilize probing questions to help the client form appropriate goals and well thought out plans. Next, the client is instructed to perform the task at hand, during which the clinician can

provide visual and verbal cueing to help the client maintain attention to task and follow his plan (e.g., pointing to steps). Lastly, the clinician and client will engage in a discussion of how well the plan worked and any changes that could have been made to make it more functional. The clinician may probe the client to rate his plan on a scale of 1-10, ask about what worked, and what didn't work. It is important for the client to be self-reflecting on his performance so the clinician should refrain from providing their input until the client has finished evaluating the plan himself.

Objective 1 Materials: Graphic organizer, such as the one below and a pencil.

Goal – what is the task?	I will... <hr/> <hr/> <hr/>
Plan – How will you do the task? (breakdown into steps)	1. 2. 3. 4. 5.
Do – Perform the task.	Completed? Y/N
Check – How well did your plan work?	Rate on a scale from 1-10: _____ What worked? _____ What didn't work? _____ Potential changes: _____

Treatment session objective 2: JT will outline a task and complete it with an exam-like time constraint with 80% accuracy given minimal visual cueing and verbal redirection to task.

Objective 2 Methods: At the beginning of the session, the clinician and client should review strategies for time management, such as creating a plan, allocating a general timeframe to each step of the task, and prioritizing the portions that require more thinking or concentration. The clinician will explain to the client that he will be completing a word search containing 10 items and he will have 5 minutes to do so. First, the client will create a step-by-step plan for executing the task within the allotted time. The clinician can provide verbal cues as necessary to prompt the client to create an appropriate plan, such as probing questions (e.g., why are you including this step? how will you address this aspect?). Once the plan completed, the clinician will set a timer and place it in the client's field of vision so that he can track his progress during the task. The client will perform the task to the best of his ability and told to stop as soon as the timer goes off. During completion of the task, the clinician may provide cues, such as indicating how much time is left (e.g., stating the time or pointing to the timer) or verbally redirecting him to the task. The clinician and client will discuss his plan and execution in order to identify what did or didn't work. This should include a lot of self-reflection from the client in order to help him generalize these skills to untrained tasks so the clinician should not provide feedback until the end.

Objective 2 Materials: Word search, pencil, and a timer of some sort (iPhone will work)