

Compensatory Cognitive Training (CCT) – Research Guidelines

Marilyn Huckans, PhD.
Elizabeth Twamley, Ph.D.

CCT HISTORY AND BACKGROUND

Grants, publications, presentations and other scholarly material should accurately convey the following history of the development of CCT and related interventions:

[2001 – present]: As Lead Author, Dr. Elizabeth Twamley developed and collected efficacy data on a manualized cognitive rehabilitation program called Compensatory Cognitive Training (CCT) for Clients with Psychiatric Illness at the University of San Diego California (UCSD) and Cognitive Symptom Management and Rehabilitation Therapy (CogSMART) at the VA San Diego Healthcare System (VASDHS). CCT has been used with adults with psychotic disorders and other conditions; CogSMART has been used primarily with Veterans with a history of traumatic brain injury (TBI).

The full references for these treatment manuals are:

1. Twamley, E.W. (2011). Compensatory Cognitive Training for Clients with Psychiatric Illness. Unpublished treatment manual.
2. Twamley, E.W., Noonan, S.K., Savla, G.N., Schiehser, D., & Jak, A. (2010). Cognitive Symptom Management and Rehabilitation Therapy (CogSMART) for Traumatic Brain Injury. Unpublished treatment manual.

Suggested publications on CCT for Clients with Psychiatric Illness include:

1. Twamley, E.W., Savla, G.N., Zurhellen, C.H., Heaton, R.K., & Jeste, D.V. (2008). Development and pilot testing of a novel compensatory cognitive training intervention for people with psychosis. *American Journal of Psychiatric Rehabilitation, 11*, 144-163.
2. Twamley, E.W., Zurhellen, C.H., (co-first authors) & Vella, L. (2010). Compensatory cognitive training (pp 50-60). In V. Roder and A. Medalia, eds., *Understanding and Treating Neuro- and Social Cognition in Schizophrenia Patients*. Basel, Switzerland: Karger.
3. Burton, C.Z., Vella, L., & Twamley, E.W. (2011). Clinical and cognitive insight in a cognitive training intervention. *American Journal of Psychiatric Rehabilitation, 14*, 307-326.
4. Twamley, E.W., Vella, L., Burton, C.Z., Heaton, R.K., & Jeste, D.V. (2012). Compensatory Cognitive Training for psychosis: Effects in a randomized controlled trial. *Journal of Clinical Psychiatry, 73*, 1212-1219.
5. Burton, C.Z., & Twamley, E.W. (2015). Neurocognitive insight, treatment utilization, and cognitive training outcomes in schizophrenia. *Schizophrenia Research, 161*, 399-402.
6. Burton, C.Z., Vella, L., Kelsoe, J.R., Bilder, R.M., & Twamley, E.W. (2015). COMT genotype and response to Compensatory Cognitive Training in outpatients with schizophrenia. *Psychiatric Genetics, 25*, 131-134.
7. Mendella, P.D., Burton, C.Z., Tasca, G.A., Roy, P., St. Louis, L., & Twamley, E.W. (2015). Compensatory Cognitive Training for people with first-episode schizophrenia: Results from a pilot randomized controlled trial. *Schizophrenia Research, 162*, 108-111.
8. Twamley, E.W. (2016). Compensatory approaches to improving functioning. In A. Medalia and C.R. Bowie, eds., *Cognitive Remediation to Improve Functional Outcomes*. New York: Oxford University Press.

9. Puig, O., Thomas, K.R., & Twamley, E.W. (2016). Age and improved attention predict work attainment in combined Compensatory Cognitive Training and supported employment for people with severe mental illness. *Journal of Nervous and Mental Disease, 11*, 869-872.
10. Thomas, K.R., Puig, O., & Twamley, E.W. (2017). Age as a moderator of change following Compensatory Cognitive Training in severe mental illness. *Psychiatric Rehabilitation Journal, 40*, 70-78.

Suggested publications on CogSMART for TBI include:

1. 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: A pilot randomized controlled trial. *Journal of Rehabilitation Research and Development, 51*, 59-69.
2. Twamley, E.W., Thomas, K.R., Gregory, A.M., Jak, A.J., Bondi, M.W., Delis, D.C., & Lohr, J.B. (2015). CogSMART compensatory cognitive training for traumatic brain injury: Effects over one year. *Journal of Head Trauma Rehabilitation, 30*, 391-401.
3. Walter, K.H., Jak, A.J., & Twamley, E.W. (2015). Psychiatric comorbidity effects on compensatory cognitive training outcomes for veterans with traumatic brain injuries. *Rehabilitation Psychology, 60*, 303-308.

[2007 – 2011]: As Lead Author, Dr. Marilyn Huckans developed and collected efficacy data on a manualized cognitive rehabilitation program called Cognitive Strategy Training (CST) at the VA Portland Health Care System (VAPORHCS) and Oregon Health & Science University (OHSU). Groups were run clinically for OIF/OEF Veterans with a history of traumatic brain injury (TBI) and current Cognitive Disorder NOS (mild cognitive symptoms); separate clinical groups also accepted adults from other service eras with Cognitive Disorder NOS, regardless of a history of TBI. Related pilot data established the preliminary efficacy of CST for OIF/OEF Veterans with a history of TBI and current Cognitive Disorder NOS.

- The full reference for the CST manual is:
 - Huckans, M. Cognitive Strategy Training (CST). (2007). Unpublished treatment manual. VA Portland Health Care System and Oregon Health & Science University, Portland, Oregon.
- Preliminary efficacy data was included in the following publication:
 - Huckans, M., Pavawalla, P., Demadura, T., Kolessar, M., Seelye, A., Twamley, E., & Storzbach, D. (2010). A pilot study examining effects of group-based cognitive strategy training treatment on self-reported cognitive problems, psychiatric symptoms, functioning, and compensatory strategy use in OIF/OEF combat veterans with persistent mild cognitive disorder and history of traumatic brain injury. *Journal of Rehabilitation Research and Development, 47*(1), pp. 43-60. PubMed PMID: 20467326. PubMed Central PMCID: PMC4755481.

[2008 – 2017]: Dr. Huckans's pilot data and related publication from CST for TBI was used to support a subsequent VA Merit Review Award application (Daniel Storzbach and Elizabeth Twamley, Multiple Principal Investigators (MPIs); Marilyn Huckans, Co-Investigator). After the project was funded, original content from Dr. Huckans's CST manual and Dr. Twamley's CogSMART manual were combined and re-organized into a new treatment manual called "Compensatory Cognitive Training (CCT) for TBI". Drs. Huckans and Twamley are the Lead Authors of CCT for TBI, and individuals who assisted with the revision are included as co-authors. Drs. Storzbach and Twamley (MPIs) then led the research team that established the

efficacy of CCT for TBI through a multi-site randomized controlled trial, and related data has now been published.

- The full reference for the current CCT for TBI manual is:
 - Twamley, E.*, Huckans, M.*, Tun, S., Hutson, L., Noonan, S., Savla, G., Jak, A., Schiehser, D., & Storzbach, D. (2012). Compensatory Cognitive Training for Traumatic Brain Injury (CCT for TBI). Unpublished treatment manual, VA Portland Health Care System and Oregon Health & Science University, Portland, Oregon & VA San Diego Health Care System and University of California, San Diego, California.* Both authors contributed equally to this work as Lead/Corresponding Authors and have primary responsibility over its content.
- Efficacy data is included in the following publication, as well as additional publications either published or in development:
 - Storzbach*, D., Twamley*, E.W., Roost, M.S., Golshan, S., Williams, R.M., O’Neil, M., Jak, A.J., Turner, A.P., Kowalski, H.M., Pagulayan, K.F. & Huckans, M. (2017). Compensatory Cognitive Training (CCT) for Operation Enduring Freedom/Operation Iraqi Freedom/Operation New Dawn (OEF/OIF/OND) Veterans with mild traumatic brain injury. *Journal of Head and Trauma Rehabilitation* 32(1), pp. 16-24. *Contributed equally as first authors. *[Named by the Defense and Veterans Brain Injury Center (DVBIC) in their list of “Top 10 Concussion Research Articles of 2016”]*
 - Pagulayan, K.F.*, O’Neil, M.*, Williams, R.M., Turner, A.P., Golshan, S., Roost, M.S., Laman-Maharg, B., Huckans, M., Storzbach, D., & Twamley, E.W. (Epub ahead of print). Mental health does not moderate Compensatory Cognitive Training efficacy for veterans with a history of mild traumatic brain injury. *Archives of Physical Medicine and Rehabilitation*. *Contributed equally as first authors.

[2011 – present]: Dr. Huckans completed a major revision of the CCT for TBI manual called “Motivationally Enhanced Compensatory Cognitive Training (ME-CCT)”. Among other changes, the revision incorporates brief motivational interviewing techniques/modules to increase behaviors associated with improved cognition (physical exercise, mental exercise, mindfulness exercises, and use of day planners/calendars) and to facilitate discussion of home exercises (i.e., elicit change talk); more frequent practice of mindfulness exercises as a way to improve cognition; new decision-making strategies that evaluate both short- and long-term consequences in order to reduce impulsivity. Dr. Huckans began running clinical groups and collecting pilot data using the new ME-CCT manual with two different populations – adults with mild cognitive impairment (MCI), and adults with addictions. Drs. Huckans and Twamley are the Lead Authors of the ME-CCT for MCI and ME-CCT for Addictions manuals, and the co-authors from the CCT for TBI manual have been retained as co-authors. Dr. Huckans’s ME-CCT for MCI pilot data was used to support a VA Merit Review Award application (Marilyn Huckans and Elizabeth Twamley, Multiple Principal Investigators (MPIs); Daniel Storzbach, Co-Investigator) that was ultimately funded and is currently in the start-up phase. Dr. Huckans continues to collect pilot data on the ME-CCT for Addictions manual and intends to apply for funding to support a future randomized controlled trial to evaluate its efficacy.

- The full reference for the ME-CCT for MCI manual is:
 - Huckans, M.*, Twamley, E.*, Tun, S., Hutson, L., Noonan, S., Savla, G., Jak, A., Schiehser, D., & Storzbach, D. (2013). Motivationally Enhanced Compensatory Cognitive Training for Mild Cognitive Impairment (ME-CCT for MCI). Unpublished

treatment manual. VA Portland Health Care System and Oregon Health & Science University, Portland, Oregon & VA San Diego Health Care System and University of California, San Diego, California.* Both authors contributed equally to this work as Lead/Corresponding Authors and have primary responsibility over its content.

- The full reference for the ME-CCT for Addictions manual is:
 - Huckans, M.*, Twamley, E. *, Tun, S., Hutson, L. Noonan, S., Savla, G., Jak, A., Schiehsler, D., & Storzbach, D. (2013). Motivationally Enhanced Compensatory Cognitive Training for Addictions (ME-CCT for Addictions). Unpublished treatment manual. VA Portland Health Care System and Oregon Health & Science University, Portland, Oregon & VA San Diego Health Care System and University of California, San Diego, California.* Both authors contributed equally to this work as Lead/Corresponding Authors and have primary responsibility over its content.
- A suggested publication for the review/background work that supported the development of ME-CCT for MCI is:
 - Huckans, M., Hutson, L., Twamley, E., Jak, A., Kaye, J. & Storzbach, D. (2013). Efficacy of cognitive rehabilitation therapies for mild cognitive impairment (MCI) in older adults: Working toward a theoretical model and evidence-based interventions. *Neuropsychology Review*, 23(1), pp. 63-80. PubMed PMID: 23471631. PubMed Central PMCID: PMC3640648.

[2007 – present]: Individuals from around the globe have requested to use the CogSMART, CST, CCT, and ME-CCT manuals for clinical purposes. Various individuals are also using the manuals for research purposes with permission from the Lead Authors. For example, Dr. Maya O’Neil has collected some pilot data on telehealth administration of CCT for TBI, and she is collecting pilot data on the use of ME-CCT with adults with depression and PTSD. Individuals who use all or part of CCT related manuals for research or other purposes are expected to comply with guidelines outlined in this document, including when developing grants, presentations, manuscripts, new treatment manuals, and other works.

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- National Institutes of Health (NIH) – General Guidelines for Authorship Contributions: https://oir.nih.gov/sites/default/files/uploads/sourcebook/documents/ethical_conduct/guidelines-authorship_contributions.pdf

In general, the Principal Investigator(s) of the related grant or project, AND the Lead Authors of a “new” CCT intervention (as defined in earlier sections) that was investigated through the project, should together decide authorship order for all manuscripts and publications that result from the project.

- In most cases, when multiple manuscripts or publications will result from the same project, the Principal Investigators and Lead Authors will fairly split senior authorship (i.e., last author) and first authorship roles (e.g., each will be senior author on two papers, and each will be first author on two papers).
- The Principal Investigators and Lead Authors may alternatively opt to assign other contributors to be first author on one or several resultant manuscripts or publications. In this case, the first author should meet all ICJME criteria AND draft most of the manuscript.
- All Key Personnel on a research project, protocol, or grant, including the Lead Authors of a “new” CCT intervention that was investigated, should be included as authors on all manuscripts and publications resulting from the project.

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REFERENCES AND RESOURCES

APA – Ethical Principles of Psychologists and Code of Conduct

<http://www.apa.org/ethics/code/index.aspx>

ICJME – Defining the role of authors and contributors:

<http://www.icmje.org/recommendations/browse/roles-and-responsibilities/defining-the-role-of-authors-and-contributors.html>

NIH – General Guidelines for Authorship Contributions:

https://oir.nih.gov/sites/default/files/uploads/sourcebook/documents/ethical_conduct/guidelines-authorship_contributions.pdf

NIH – Collaboration & Team Science: A Field Guide:

https://ccrod.cancer.gov/confluence/download/attachments/47284665/TeamScience_FieldGuide.pdf?version=2&modificationDate=1285330231523

NIH - Guidelines and Policies for the Conduct of Research in the Intramural Research Program at NIH, Fifth Edition (May 2016):

https://oir.nih.gov/sites/default/files/uploads/sourcebook/documents/ethical_conduct/guidelines-conduct_research.pdf

OHSU Authorship Attribution Policy No. 12-70-010: <https://o2.ohsu.edu/policies-and-compliance/ohsu-policy-manual/chapter-12-other-policies/ohsu-policy-12-70-010.cfm>

OHSU Research Integrity Committee:

<http://www.ohsu.edu/xd/research/about/integrity/scientific-integrity-committee.cfm>

OHSU Research Misconduct Policy No. 04-15-005: <https://o2.ohsu.edu/policies-and-compliance/ohsu-policy-manual/chapter-4-research-services-intellectual-property/ohsu-policy-04-15-005.cfm>

University of Pittsburgh – Guidelines for Responsible Conduct of Research (March 2011):

<http://www.provost.pitt.edu/documents/GUIDELINES%20FOR%20ETHICAL%20PRACTICES%20IN%20RESEARCH-FINALrevised2-March%202011.pdf>

UCSD – Integrity of Research Policy and Procedures -

<http://adminrecords.ucsd.edu/ppm/docs/100-4.html>

VA Portland Health Care System - Research and Development Policy and Procedure: Research Misconduct (10/01/2007): <https://www.portland.va.gov/research/documents/research-misconduct.pdf>

Washington University - Policy for Authorship on Scientific and Scholarly Publications:

<http://research.wustl.edu/PoliciesGuidelines/Pages/AuthorshipPolicy.aspx>