

Occupational Therapy Interventions for Adults With Traumatic Brain Injury

Steven Wheeler, Amanda Acord-Vira, Marian Arbesman,
Deborah Lieberman

This Evidence Connection describes a case report of an adult with traumatic brain injury (TBI), applying the evidence for intervention from the systematic reviews on TBI that were conducted in conjunction with the American Occupational Therapy Association's (AOTA's) Evidence-Based Practice Project. The occupational therapy assessment and treatment processes for hospital, home, and community settings are described. Evidence Connection articles provide a clinical application of systematic reviews developed in conjunction with AOTA's Evidence-Based Practice Project.

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Steven Wheeler, PhD, OTR/L, CBIS, is Professor, Rehabilitation Sciences, and Program Director, Occupational Therapy, University of Cincinnati, OH; steven.wheeler@uc.edu

Amanda Acord-Vira, MOT, OTR/L, CBIS, is Assistant Professor, Division of Occupational Therapy, West Virginia University, Morgantown.

Marian Arbesman, PhD, OTR/L, is Methodology Consultant, Evidence-Based Practice Project, American Occupational Therapy Association, Bethesda, MD; President, ArbesIdeas, Inc., Williamsville, NY; and Adjunct Assistant Professor, Department of Rehabilitation Science, University at Buffalo, NY.

Deborah Lieberman, MSHA, OTR/L, FAOTA, is Director, Evidence-Based Practice Project, and Staff Liaison to the Commission on Practice, American Occupational Therapy Association, Bethesda, MD.

Clinical Case

Kevin is 33 years old and works at a commercial roofing company as a salesman. He is married, has no children, and lives in a two-story home. During an inspection of a roof that needed repair, Kevin fell 28 feet onto concrete, sustaining a traumatic brain injury (TBI). Kevin required a ventilator, feeding tube, and tracheostomy and remained in the intensive care unit for 1 month before being transferred to an inpatient rehabilitation hospital. Over the next 3 months, Kevin transitioned through the levels of the Rancho Los Amigos Scale of Cognitive Functioning (Hagen, 1998) and was functioning at Level VI when discharged home with his wife to continue his therapy at an outpatient brain injury day treatment program.

Occupational Therapy Assessment and Findings

Nikki, Kevin's occupational therapist, completed an occupational profile and a variety of additional assessments to analyze occupational performance during Kevin's first scheduled outpatient session. The Canadian Occupational Performance Measure (COPM; Law et al., 2014) was used to determine Kevin's occupational profile and measure his self-perception of performance and satisfaction. Kevin indicated that the five most important areas of functional performance for him to improve were returning to work, driving, cooking, paying bills, and rejoining his company basketball team. The following assessments were also completed:

- The Community Integration Questionnaire (CIQ; Willer, Ottenbacher, & Coad, 1994), to assess Kevin's current level of functioning with home integration, social integration, and productivity (e.g., employment, volunteer, school)

- The Satisfaction With Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985), to assess Kevin's current level with cognitive judgments regarding satisfaction with one's life.

Table 1 provides scores for all three assessments at initial evaluation and at discharge.

Nikki analyzed the findings of the assessments and found that Kevin presented with limitations in community participation as a result of impairments in psychosocial functioning, memory, and self-awareness. Nikki reviewed the evidence and found the following information from the *Occupational Therapy Practice Guidelines for Adults With Traumatic Brain Injury* (Wheeler & Acord-Vira, 2016) and from the April 2016 issue of the *American Journal of Occupational Therapy* (Radomski, Anheluk, Bartzan, & Zola, 2016; Wheeler, Acord-Vira, & Davis, 2016) to support the interventions selected for Kevin:

- Moderate to strong evidence to support the use of goal-directed interventions to improve self-ratings of performance and satisfaction, goal attainment, occupational performance, and psychosocial reintegration
- Moderate evidence to support the use of aquatic therapy to improve tension, depression, anger, and confusion
- Strong evidence to support the use of general memory interventions that combine restorative and compensatory interventions to improve memory.

Occupational Therapy Intervention

Kevin attended occupational therapy 3 days per week for 2 hours each day. On the basis of the clinical find-

Table 1. Assessment Scores

Assessment	Evaluation	Discharge
COPM ^a	Performance/ Satisfaction	Performance/ Satisfaction
Return to Work	1/1	2/2
Meal Prep	3/3	7/6
Social Outings With Friends	4/3	6/7
Money Management	2/1	6/5
Basketball	1/1	7/8
CIQ ^b		
Home Integration	5	7.50
Social Integration	5	7
Productivity	2	4
SWLS ^c	20	18

Note. CIQ = Community Integration Questionnaire; COPM = Canadian Occupational Performance Measure; SWLS = Satisfaction With Life Scale.

^aCOPM scores range from 1 (*low performance or not satisfied*) to 10 (*high performance or satisfied*). ^bCIQ scores: total score = Home Integration score + Social Integration score + Productivity score. ^cSWLS scores: 1 (*strongly disagree*), 2 (*disagree*), 3 (*slightly disagree*), 4 (*neither agree or disagree*), 5 (*slightly agree*), 6 (*agree*), 7 (*strongly agree*).

ings, evidence, and client goals, Nikki established the intervention plan. The plan used the following interventions to maximize Kevin's potential to return to his desired occupations:

- Client-centered goal setting to improve self-awareness and interpersonal communication
- Physical activity to improve depression and anger
- Restorative and compensatory strategies to improve memory recall.

Sample Intervention 1

Nikki used Goal Attainment Scaling (GAS; Kiresuk & Sherman, 1968; Kiresuk, Smith, & Cardillo, 1994) to facilitate a sense of participation and accountability so that Kevin could measure his success over time, with the ultimate goal of improving self-awareness as well as behavioral and communication skills. Nikki scheduled Kevin to attend a weekly social communication (Dahlberg et al., 2007) and behavioral skills training group consisting of clients with TBI. During the weekly group meetings, Kevin, with input from the group leaders and his significant others, established goals focused on social communication (e.g., self-awareness, speech, interpersonal communication) and appropriate behaviors for the community.

Using GAS, Nikki and Kevin rated each goal on a 5-point scale that ranged from -2 to +2. For example, one area of primary concern for Kevin was that he would often greet others with an embrace even if it was someone he had never met before. Developing socially appropriate behaviors in this area was established as a goal in the first session. See Figure 1 for Kevin's plan to reach this goal.

During subsequent group meetings, Kevin would present to the group his performance over the previous week and establish new goals. In addition, Kevin would receive feedback from his peers with the ultimate goal of improving overall self-awareness.

Sample Intervention 2

Kevin identified depression as a major limiting factor affecting his motivation to engage in a variety of occupations. He indicated that he had difficulty understanding and coping with the emotions of life after the TBI and an inability to engage in activities that he enjoyed before the accident. Kevin began participating in a physical activity group in the aquatic therapy pool located at the outpatient day treatment facility. Kevin participated for a minimum of 90 minutes of exercise per week to improve tension, depression, anger, fatigue, and quality of life. In addition, participating in the aquatic therapy environment led to other group members encouraging him to join them at the

-2 = I will embrace strangers less than 3 or more times during a 1-hr community outing.
 -1 = I will embrace strangers less than 2 times during a 1-hr community outing.
 0 = I will embrace strangers less than 1 time during a 1-hr community outing.
 +1 = I will not embrace strangers during a 1-hr community outing.
 +2 = I will greet strangers appropriately (e.g., hand shake, smile) during a 1-hr community outing.

Figure 1. Kevin's plan for his goal of embracing strangers less often during a 1-hr community outing.

Note. -2 = much less than expected; -1 = somewhat less than expected; 0 = patient achieves the expected level; +1 = somewhat more than expected; +2 = much more than expected.

local community center to play basketball on his non-therapy days.

Sample Intervention 3

Kevin identified money management and meal preparation as goals on the COPM. Through observation and assessment, it was noted that Kevin presented with short-term memory impairments, making it difficult for him to participate independently in these activities. Therefore, Nikki worked with Kevin on activities related to meal preparation, such as making a list, locating items at the store, and paying for groceries. Kevin's short-term memory impairments were addressed with a variety of interventions focused on combining restorative and compensatory strategies. One such intervention included using cell phone functions (e.g., shopping lists, notes, alarm, calendar, calculator) to compensate for memory impairments and provide visual imagery to improve recall.

Conclusion

Kevin attended occupational therapy at the outpatient day treatment program for 6 months. During this time, he was able to meet many of the initial goals he had established with Nikki. Discharge scores on the COPM indicated that Kevin's ratings of performance and satisfaction improved for all five of the occupations identified as being the most important (see Table 1). Despite gains made in occupational therapy, Kevin faces a challenging and uncertain path moving forward. The journey toward a more productive daily routine can be an uncertain one as new challenges tax existing cognitive, physical, psychological, and emotional capacities and create further expectations of greater independence. Although Kevin and his wife were educated on executive cognitive functions as part of his overall client education program, the presentation and contributions of such higher level cognitive functions on behavior, emotions, and occupational performance can be difficult to identify and even more challenging to manage. Vocational exploration and return to work mark the next stage of Kevin's progression; depending on the demands of his job, symptoms, and existing supports, Kevin may need further participation in various aspects of the rehabilitation system. ▲

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