A Therapeutic Work Program for Head-Injured Adults

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The Therapeutic Work Program operates in an ambulatory care setting and aids in assessing and developing prevocational skills in adults with head injuries. The program has eight phases, including initial evaluation, individual and group treatment, and prevocational assessment and treatment. We conducted a phone survey to evaluate the program's effectiveness and found that 79% of the 29 respondents participated in occupational activities (i.e., they were competitive or volunteer employees, homemakers, or students), a greater percentage than reported by other prevocational programs for patients with head injuries.

The National Head Injury Foundation (1986) estimates that 1 to 1.8 million people, most between 15 and 24 years old, sustain head injuries each year. Of these, 50,000 to 70,000 survivors are left with intellectual or physical impairments or both that preclude a return to premorbid functioning (National Head Injury Foundation, 1986).

Head injuries can cause impairments in physical, cognitive, and social functioning. Individually, each of these deficits can make it difficult to return to work. In combination, as seen in many head injury patients, these deficits are responsible for the low rate of return to productive employment. Although patients may have the physical and intellectual capacity to return to competitive or volunteer employment, their problematic behavioral and interpersonal skills frequently interfere with their employability. Characteristics such as lack of inhibition, aggression, and poor initiation are understood by therapists but often are not tolerated by employers and co-workers.

Until 1982, head-injured patients at the New England Rehabilitation Hospital Ambulatory Care Department received traditional physical, speech, and occupational therapies. We found that patients who were being discharged had benefited from these therapies but had not reestablished the social and prevocational skills necessary to resume their functional roles in the community. The Therapeutic Work Program (TWP) was developed specifically to address patients' prevocational and vocational needs, with prevocational intervention focusing on those skills common to all occupations (e.g., ability to relate to peers and supervisors) and vocational intervention specifically facilitating a return to work. The program uses actual work activities as therapy in the belief that occupation is "a basic human activity essential for health and the healing process" and that "therapy must embody the characteristics of purposefulness, challenge, accomplishment, and satisfaction that make up every occupation" (Kielhofner, Burke, & Igi, 1980, p. 778).

Brain-injured individuals have a wide range of skill deficits in the areas of cognition, physical capacities, and psychosocial adjustment. To meet their diverse needs the TWP has eight phases, with treatment plans based on a patient's capabilities, deficits, interests, work history, and goals. Stability and structure are provided by a consistent group time, place, leaders, and daily routine. Because the focus is on the individual, goals vary for each patient and may range from employment in a sheltered workshop to a volunteer placement to an executive position within a large company.

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Program Description

The program is designed to help an individual make a gradual, progressive transition from a medical setting to work placement and community reentry. The eight phases are as follows: individual assessment and treatment; group treatment in a variety of skill areas; prevocational assessment; therapeutic work groups; work placements within the hospital; supervised placements in the community; vocational placement; and ongoing follow-up (see Figure 1). The patient's functional status and progress are monitored on an ongoing basis, and transition to new phases is determined by the multidisciplinary team and based on the patient's needs. Not all patients go through each phase or follow the sequence described. For example, the sequences followed by two patients is shown in Figure 2. Additionally, patients usually continue with individual occupational therapy throughout their involvement in the TWP. Deficits that impede function in groups or placements are addressed during this treatment time, a strategy that we found makes the TWP more successful. For example, individual treatment interventions can be developed to help a patient recall a sequence of tasks to be completed, including determining the types (visual, verbal, etc.) and numbers of cues required.

Phase 1

Individualized assessment and treatment is conducted by all appropriate members of the team, including physiatrists, psychiatrists, neuropsychologists, nurses, social workers, vocational rehabilitation counselors, and physical, occupational, speech, and movement therapists. Additional members of the rehabilitation team are consulted as necessary. Therapists make initial baseline evaluations, and the team, which also includes the patient and family members, determines treatment goals.

The occupational therapist in this phase is responsible for perceptual and cognitive retraining, neurophysiological remediation, and specific skill interventions as necessary (e.g., dressing, cooking). One frequent area of concern to patients and families is driving, because this skill affects social and vocational opportunities. A driving evaluation is conducted when the team believes the patient is physically and cognitively ready to resume driving or when the patient strongly feels he or she is ready (the completed test may assist with development of insight). The clinical portion of the driving evaluation is conducted by an occupational therapist, followed by an on-the-road test conducted by a driver educator.

Phase 2

As patients progress to higher levels of functioning, they participate in group treatment, where emphasis is placed on interaction and interpersonal skills. Groups are led by team members individually and jointly. Groups are functionally based and focus on areas such as functional living skills, cognitive retraining, debate and effective communication, coordination, community skills, and family education. The group program is detailed elsewhere (Morse, 1986). The occupational therapy team, consisting of group leaders and patients' primary therapists, meets weekly (in addition to the interdisciplinary team meeting) to discuss any difficulties that may be interfering with patients' progress and possible interventions. We feel the strong communication within the team maximizes the effectiveness of all individual and group treatments.

Phase 3

When a patient's treatment assumes a vocational focus, he or she is referred to the therapeutic work group. Criteria for admission to this group are as follows:

1. Potential for vocational outcome ("vocation" encompasses competitive employment, volunteer
work, school or training, homemaking, or workshop placement)
2. Supervised functional mobility at the wheelchair or ambulatory level
3. Manageable social behavior
4. An attention span of 30 minutes in an environment with minimal distractions
5. The ability to follow two-step written, verbal, or demonstrated directions
6. The ability to establish goals with guidance

The first two sessions in the group are devoted to a prevocational assessment. This assessment, along with the neuropsychological test results, establishes a baseline performance level and guides appropriate task selection. The assessment consists of two parts, a constructional task and a collating task. The patient's performance is analyzed to assess attention, memory, and organizational and planning skills, as well as physical abilities (strength, gross and fine motor coordination) and perceptual skills. Specifics of the as-
assessment are discussed elsewhere (Minassian, 1986). A Physical Capacities Evaluation, an optional part of the assessment, is administered if physical deficits are expected to interfere with the patient's return to work.

**Phase 4**

The therapeutic work groups are held in a building separate from the hospital, marking an initial transition from the role of patient to the role of worker. The groups are conducted 5 days per week for 3 hours daily. Patients' involvement is based on their individual treatment goals. Groups are led by one or two occupational therapists, depending on the number of group members (from three to eight patients). The group structure includes a daily routine, and members are required to be as independent as possible. For example, they are responsible for punching a time card in and out, checking their boxes for new or continuing assignments, and seeking assistance as necessary. At the end of each group session, patients complete a self-assessment that requires a statement of goals, accomplishments, and plans for the next session. This self-assessment consists of five questions, such as, "What project were you working on today?" and "How did this job challenge you?"

Members of the therapeutic work group are involved in a variety of work tasks, including secretarial activities (typing, filing, collating), assembly tasks (bookbinding or assembling equipment such as tub seats), and construction jobs (building reality orientation boards). The emphasis is on developing pre-vocational and work readiness skills (e.g., the ability to relate to peers and supervisors or to attend group meetings promptly and consistently), not on training for specific jobs. Job simulation may be included when recommended by the vocational counselor.

During this phase, the occupational therapists collaborate with the vocational counselors. The therapists receive information from the counselors on appropriate tasks for a patient based on his or her occupational plans. The counselors receive information from the therapists about deficits that may interfere with the patient's return to work as well as strengths that may help the patient to overcome these obstacles.

**Phase 5**

Supervised work placements within the hospital are available in a variety of departments (e.g., dietary services, cafeteria, gift shop, hospital mail delivery, computer programming). The placements may be varied to suit a patient's functional level by modifying the structure and amount of supervision required or by modifying the tasks involved. For example, a patient may start on the cash register in the hospital gift shop, a low-speed and low-stress environment, and progress to the cafeteria as skills and self-confidence improve. The cafeteria placement can be at peak hours or at nonpeak hours in order to alter the amount of stimulation and stress.

**Phase 6**

Placing patients in supervised work situations outside of the hospital further integrates them into the worker role and reduces their identification with the patient role. Currently placements are available in a food cooperative and in a residential facility for the elderly, where supervision is provided by occupational therapists. A variety of tasks is available in both jobs. At the food cooperative, patients package, weigh, price, and stock goods, work the cash register, and unload trucks. At the housing complex for the elderly, tasks include the chores necessary to care for house plants, a greenhouse, a vegetable and flower garden (in the summer), and an atrium. As in the hospital, the task, supervision, and structure are modified to best assist each person in reaching his or her individual treatment goals.

**Phase 7**

In this phase, the patient is placed by the vocational rehabilitation counselor into competitive or noncompetitive employment. The counselor provides individual vocational counseling, conducts work-site evaluations, performs vocational evaluations, and meets with former and potential employers to assist with the transition to the actual work setting.

**Phase 8**

Follow-up is conducted primarily by the physiatrist and the vocational rehabilitation counselor, although other team members (especially the psychiatrist) complete follow-ups when appropriate. The purpose is to help the individual with any transitional issues and to monitor the patient's status and progress.

**Evaluation**

To evaluate the effectiveness of the TWP, all patients with a diagnosis of traumatic head injury who have been discharged from the TWP since its inception in 1982 were identified from medical records as subjects for a survey. Of the 32 identified, 1 had died and 2 could not be contacted, leaving a total of 29 subjects.

Information about the subjects' background, including dates of participation in the TWP, diagnosis, and date of injury were obtained from medical records. A telephone survey was conducted consisting of 21 open-ended and yes/no questions about voca-
After participating in the TWP, 55% of the subjects was corroborated by respondents' families and hospital personnel who had conducted follow-up appointments. We were able to verify the information of 65% of the respondents through other sources, and in all cases the information was consistent with the respondents' reports.

Results and Discussion

Background Information

The majority of the subjects fit the brain injury profile provided by the National Head Injury and Spinal Cord Survey (Kalsbeek, McLaren, Harris, & Miller, 1980); they were male (69.0%), between the ages of 20 and 30 (76.0%), ranging from 21 to 56, and had head injuries secondary to motor vehicle accidents (82.8%) (Bond, 1984). The majority (76.0%) had been injured 1½ to 3½ years ago. Time since discharge ranged from 2 to 39 months, with a mean of 16 months. At the time of the survey, 48.3% of the subjects were single, 34.5% were married, and 17.2% were divorced. Of the subjects who were divorced, 4 out of 5 had been divorced since their accidents.

Neuropsychological assessments had been performed on 22 of the 29 subjects. As a group these subjects were found to be functioning intellectually on the Wechsler Adult Intelligence Scale, Revised (WAIS-R) in the low average range. Subjects had a mean verbal IQ on the WAIS-R of 89.15, a performance IQ of 84.28, and a full scale IQ of 85.84. Subjects' median memory quotient on the Wechsler Memory Scale (Form I) was 89, which is in the low average range. Thus, many of the subjects had impaired intellectual and memory functioning, probably resulting from the head trauma.

Marital/Living Arrangement Status

After participating in the TWP, 55% of the subjects lived with their parents, 41.0% lived independently (with spouse, alone, or with a young child), and 3.4% were in a medical facility. Of the six who were unemployed, four lived with their parents, one was in a medical facility, and one lived independently. These results may reflect a relationship between the skills necessary to carry out everyday activities independently and the skills necessary for successful work.

TWP Involvement

The mean length of time in the TWP was 6.2 months. Length of stay was shorter for those subjects who were working (5.6 months) than for those who were unemployed (8.3 months). When the TWP was initially implemented, patients were involved for a longer period of time. As our experience broadened and the staff developed expertise, the quality of the program improved. Major changes incorporated were increased use of outside placements and stronger, more consistent vocational rehabilitation involvement. With these and other improvements (e.g., use of the time clock) patients' function has been improved in a shorter period of time.

Work Status

For this study, work was defined as competitive employment or involvement as a primary homemaker or student. In addition, volunteer or sheltered workshop employment would have been included as work, but none of the 29 subjects fell into these categories.

Table 1 shows that the majority of subjects (96.6%) were working before their injury; 64.0% had been employed in their jobs from 1½ to 14 years prior to their injury. These figures indicate that the subjects had a good premorbid work history that could be tapped in an effort to help them return to work. Reasons that several of the subjects had been in their jobs less than 1½ years may have been related to their youth, recent graduation from school, or the fact that they were not yet established in careers. Table 1 also shows that 23 subjects (79.3%) were working after participating in the TWP (17 were competitively employed, 2 were students, and 4 were primary homemakers).

Because we base the effectiveness of the TWP on return to work (as previously defined), its success is measured by comparing its work status results with those of similar programs. However, such comparison is difficult because of the varied types of programs, the different functional levels of head-injured participants, and the measures of successful return to work.

Other program evaluations show return to work rates of 51 to 60%. The Center for Comprehensive Services in Carbondale, Illinois, reported that 56% of its patients were involved in volunteer work, sheltered workshops, or supported or independent employment after completing their program (Spicuzza, 1985). Similarly, the Woodrow Wilson Rehabilitation Hospital in Fishersville, Virginia, reports that 51% of its patients were productively employed after partici-
pat ing in their vocational training program in 1984–85. Their program was divided into four levels, one of which was a vocational program. As of September 1985, 30 patients had entered, 15 had left the program of their own accord or had left because of behavior problems, and 60% of the remaining 15 patients became productively employed (Spicuzza, 1985).

Six of the subjects (20.7%) who had participated in the TWP were unemployed. One was recently laid off, two were scheduled to begin work (one as a volunteer), and three had not had jobs since discharge. One of these was hospitalized in a medical facility because of increasing cognitive and physical deficits.

The categories of post-TWP work did not vary from those prior to injury (see Table 2). However, subjects often did work that was different from the work they had done prior to the head injury.

Table 3 shows the comparison of present jobs with former jobs. We did not find the expected positive correlation between the length of time at a job prior to injury and return to work at the same company. Return to the same or a different company was unrelated to the length of time of prior employment.

At the time of the survey, 43.5% of the subjects had been employed in their current jobs for between 3 months and 1 year, and 43.5% had been working for less than 3 months. The reasons the subjects offered for the short period of time at their jobs included active involvement in or recent discharge from the treatment program, recent enrollment in school, and recent change of jobs. The majority of respondents (82.6%) were working 40 or more hours per week.

Sixty-five percent of the subjects had had one or two jobs since discharge (see Table 4), and 13.8% had had three or more jobs. No correlation was found between what individuals found most difficult (i.e., cognitive or physical demands) and whether or not they were able to maintain their jobs. The majority of respondents had not had a high rate of job turnover. By providing ongoing follow-up and remaining available to them and to their employers, we hoped to intervene as problems arose, thus preventing job turnover. Immediate vocational counseling is necessary when a patient loses his or her job.

### Work Problems and Attitudes

#### Work Satisfaction

The majority of the respondents reported they liked their jobs (78.3%). Many found their jobs challenging and looked forward to going to work. Four respondents did not enjoy their work; three were homemakers who said that they would be happier if they were involved in competitive employment. We did not have a response from one individual.

#### Subjective Work Difficulty

When the subjects were asked what they felt were the easiest aspects of their work, 52.2% responded that the easiest tasks were those that were repetitious, familiar, and made few cognitive demands. This finding may be useful to professionals working with head-injured individuals when they are assisting them in finding jobs. Jobs should provide structure and repetition and should be familiar to the patient from previous work experiences. Twenty-two percent of the respondents said that everything came easily for them; this finding may indicate decreased insight into problem areas. Three individuals felt that nothing came easily for them on the job.

Consistent with what respondents found easiest in their jobs, 65.2% felt the most difficult aspects of their jobs were those that required memory or new learning and those that had high cognitive demands such as problem solving and planning or organizing. This finding is supported by Bond (1983), who...
states, “Impairment of memory is the most common of all basic changes attributable directly to brain injury” and “There is general agreement that mental rather than physical deficits give rise to the most taxing problems for the victim and the family and that disorders of personality and behavior are the source of most of their difficulties” (Bond, 1983, p. 210). This finding suggests that therapists should educate employers regarding the head-injured employee’s cognitive and behavioral problems and provide information about the most successful techniques to compensate for the problems. The best method for teaching new information, which varies with each individual, can also be shared with employers. Educating employers in this manner assists in successfully returning a patient to work and can improve the quality of the patient’s work.

Five respondents found that the physical demands of their jobs were the most difficult. We found no correlation between what respondents reported to be the easiest and most difficult and the type of work they were involved in. For example, many of the heavy laborers found that the cognitive aspects of their jobs were most difficult, whereas a secretary found the physical aspects most difficult. Problems appear to show up in areas where the individual is most impaired, such as a task requiring recall of a sequence of activities, not in the areas of the task believed to be most difficult.

**Self Evaluation of Job Performance**

Of the 29 subjects, 22 responded to a self-evaluation of their job performance. When asked to compare their present work skills with their skills prior to injury, 19 respondents (82.6%) thought their present work skills were from 70 to 100% of what they had been formerly. Seventeen of this group had been discharged a year or more ago. Nine respondents felt they were functioning at 80% of their prior level. Those three respondents who rated themselves between 50 and 65% had been discharged within the past 4 months. This finding may indicate that patients gain new skills and confidence with practice on the job over time through repetition and experience. In any case, these patients seem to feel that they have continued to improve since discharge. Since the majority of the patients did not feel that they were functioning at their premorbid levels, this indicates that deficits interfering with work often remain after discharge and that most employed persons appear to have some awareness of their problem areas.

**Summary**

This article described the TWP, a prevocational evaluation and training program designed and implemented by occupational therapists in an ambulatory care setting. The program addresses the range of needs demonstrated by brain-injured patients, from traditional therapy to group therapies to prevocational and vocational intervention. The evaluation of the program indicates that the program was successful with brain-injured adults; 79% of the patients who completed the program returned to work. Strengths of the program, which may aid in its success, include continuation of individual occupational therapy during involvement in group treatment to address problems identified in groups; strong intra- and interdisciplinary communication; grading of responsibility and task difficulty; strong vocational rehabilitation intervention; and follow-up by the rehabilitation team.

**Acknowledgments**

The Therapeutic Work Program was originally developed in 1982 at the New England Rehabilitation Hospital by Patricia Harris Minassian, OTR. The program was further developed and refined by Janet Kenig, OTR, Maureen Flaherty, OTR, and Sharon Engelhardt, OTR.

**References**


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