Effects of a Leisure Education Program on Adults with Traumatic Brain Injury

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This investigation compared the effects of a leisure education program using values clarification strategies versus informal discussion on adults with traumatic brain injury. The effects of a leisure education program on leisure attitudes, leisure satisfaction, and perceptions of freedom in leisure were investigated. Subjects (N = 12) were randomly assigned to a leisure education or an informal discussion group. Multivariate analysis of variance revealed no significant differences between groups' attitudes, satisfactions, or perceptions of freedom. There were significant pretest to posttest differences for both groups on the psychological, educational, relaxation, and aesthetic dimensions of leisure satisfaction. The results tend to partially support the provision of therapeutic recreation services in a day hospital program for persons with traumatic brain injuries.

KEY WORDS: *Leisure Education, Values Clarification, Traumatic Brain Injury, Leisure Attitudes, Leisure Satisfaction Scale, Perceptions of Freedom, Leisure Ethic Scale, Leisure Diagnostic Battery.*

Among the central nervous systems disorders, traumatic brain injuries (TBI) account for almost half of all trauma fatalities. Some authors project the annual incidence of TBI to be 200 cases per 100,000 population (Bartkowski & Lovely, 1986; Fazio & Fralish, 1988). Traumatic brain injury may be defined as a craniocerebral traumatic injury that results from initial sudden forces levied to the head (Thomas & Trexler, 1982)

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and secondary brain damage (e.g., raised intracranial pressure, intracranial hematoma) which leave residual disabilities (Habermann, 1982). Those who survive brain injuries may exhibit permanent physical, cognitive, and behavioral deficits. Although the location, extent, and severity of injury vary with each person, these dysfunctions often persist beyond treatment and rehabilitation (Burke, Wesolowski & Guth, 1988), thus exacerbating the challenges associated with developing and implementing independent living and community re-entry programs.

Many of the physical dysfunctions following TBI are similar to those presented by other neuromuscular disorders. Motor deficits may range from spasticity, ataxia, rigidity, dyskinesia, tremors, to flaccidity. Visual, auditory, and speech impairments may compound motoric disabilities. Some may experience the concomitant symptoms of postural weakness and lack of postural control. Tremors and startle reactions may be present and for others seizure disorders may significantly alter the ability to move about independently (Condelucci, Cooperman & Seif, 1987).

Although these physical deficits are significant, perhaps of greatest challenge to rehabilitation specialists are the cognitive sequela and their treatment. Several significant cognitive dysfunctions have been reported by Condelucci, et al. (1987) and Dring (1989). While memory deficits vary according to the extent of brain trauma, persons with TBI frequently perform poorly on short-term and/or long-term memory tasks (Brooks, 1975).

Problems with concentration may lead to distractibility and difficulties screening out irrelevant stimuli which affect the injured person's ability to plan, organize, and execute a task efficiently. Becoming independently prepared and organized to participate in recreational or vocational activity is difficult for many. Lack of personal initiative and/or motivation to follow through may be symptomatic behaviors contributing to the lack of planning and organizational skills. Impaired safety and social judgment is a commonly reported dysfunction. Such impairments adversely effect one's ability to make well-thought-out decisions. Dring (1989) reported that behavioral problems and mood fluctuations may be evident in some with TBI.

Behavioral and social limitations presented by those with TBI adversely affect the development of independent living skills. Diller and Ben-Yishay (1987) noted that a decline in the number of social contacts coupled with increasing passive behaviors (e.g., napping) keep them less involved. Fazio and Fralish (1988) suggested that persons with severe head injuries lead "less active social lives post accident" (p. 48). They reported, too, that such persons tend to withdraw and generally have problems related to leisure.

Gobble, Dunson, Szekeres and Cornwall (1987) noted that over the past decade facilities and programs have been developed to assist in community reintegration efforts. It has been recognized that such services frequently include training in avocational pursuits (Gobble, et al., 1987) and include recreation programs that help to ameliorate some of the social (Fazio & Fralish, 1988), cognitive and physical problems associated with TBI.

The purpose of this investigation was to determine the effects of a leisure education program using values clarification strategies upon leisure attitudes, leisure satisfaction, and the perceptions of freedom in leisure of adults with traumatic brain injury. It was hypothesized that subjects who received a planned leisure education program using directed values clarification activities and guided recreation experiences would (a) develop more positive attitudes toward leisure, (b) experience greater satisfaction in leisure, and (c) perceive greater freedom in leisure than subjects who participated in informal discussion activities.

Method

Sample

The available pool of subjects were five women and nine men (n = 14), adults with traumatic brain injury, who were patients in the Day Hospital Program of a midwest comprehensive rehabilitation center. Attrition due to discharge, before program implementation, of two patients originally assigned to a control group resulted in a final sample size of 12.

As summarized in Table 1, the average age of the study sample (n = 12) was 23.58 years. The majority were unmarried high school graduates who spent, on the average, 73 days in acute care, 98 days in comprehensive rehabilitation services, and 175 days in the day hospital program. The majority were ambulatory, had verbal skills, and were rated 7 on the Rancho Los Amigos Scale of Cognitive Functioning. This rating, known as the Automatic-Appropriate level, suggests that a person performs daily routines with little or no confusion, has little recollection of what he or she has been doing, has limited insight into the facts of the condition, has less than normal judgment, learns new information slowly, and is able to participate in recreation and social activities in which personal interest has been regained (Malkmus, 1980). Seven of these subjects (males = 5, females = 2) were randomly assigned to a leisure education (LE) treatment group which used values clarification strategies to assist in their re-orientation to independent living. The other five (males = 3, females = 2) were placed in an informal discussion (ID) control group.

The average age of the LE group members was 25.57 years, five of whom were single and two were divorced. The mean number of years of education completed was 11.86 while three were skilled employees, one was unskilled, two were students, and one person was unemployed. The brain injuries of most were classified as diffused which resulted in an average 96 days in acute care. On the average, 84 days were spent in comprehensive rehabilitation programs including communication, occu-

Table 1.

Comparison of Demographic and Neurological Characteristics of Control and Treatment Groups

Variable	Group ID (n = 5)	Group LE (n = 7)
Average Age	20.80	25.57
Gender		
Female	2	2
Male	3	5
Marital Status		
Divorced	1	2
Single	4	5
Education (Ave. no. yrs.)	12.00	11.86
Occupation		
Skilled	—	3
Unskilled	3	1
Student	2	2
Unemployed	—	1
Ave. number of days in		
Acute Care	41	96
Rehabilitation	119	84
Day Hospital	148	194
Ambulation		
Ambulating	4	6
Non-ambulating	1	1
Verbal Skills		
Verbal	5	7
Non-verbal	—	—
Location of Brain Injury		
Diffuse	4	3
Temporal	2	2
Subdural	2	—
Brain Stem	—	1
Cause of Injury		
Fall	1	2
MVA	4	5
Ave. Rancho Level	7.00	6.71

pational, physical, and recreational therapy and 194 days were spent in the day hospital program, services designed to foster the development of independent living skills. Most were ambulatory by using an assistive device such as a quad-cane or walker. Most had verbal skills and were rated 7 on the Scale of Cognitive Functioning.

Members of the ID group averaged 20.80 years of age. The majority were single and had completed high school. The majority were unskilled laborers and two were students. They had varying degrees of brain injury (i.e. frontal lobe or diffuse) and spent an average of 41 days in acute care. The mean number of days spent in rehabilitation was 119 and 148 days were spent in the day hospital program. Most were ambulatory. All had verbal skills and averaged 6.71 rating on the Rancho Los Amigos Scale.

Analysis of variance at the .20 probability level of significance revealed that the LE and ID groups were not statistically different with respect to age [$F(1, 10) = 1.18$, $p = .30$], days in rehabilitation [$F(1, 10) = .60$, $p = .46$], or days in the day hospital [$F(1, 10) = 1.82$, $p = .21$]. The groups were similar in years of education, verbal skills, and cognitive functioning. The LE group spent significantly more days in acute care [$F(1, 10) = 2.71$, $p = .13$], however.

Leisure Education Program

Fundamental to the leisure education program using the values clarification process are the assumptions associated with the nature of human values. Rokeach (1973) defined a value as "an enduring belief that a specific mode of conduct or end-state of existence is personally or socially preferable to an opposite or converse mode of conduct or end-state of existence" (p. 5). Values consist of cognitive, affective, and behavioral components. Cognitively, values are learned from primary and secondary sources. Values then become dependent variables affected by one's parents, peers, and other social forces (Hart, 1978). Personal expressions of approval or disapproval toward a mode of conduct or end-state describes the affective value domain. While it is difficult to measure the relationship between values and behavior, Rokeach (1973) asserted that a value has a behavioral component in that it becomes an intervening variable that when activated leads to action. One must consider the relationship between values, attitudes and behavior in order to understand behavioral expression. Rokeach (1973) argued that "values occupy a more central position than attitudes within one's personality" and are "determinants of attitudes as well as of behavior" (p. 18). While attitudes are associated with specific objects (Iso-Ahola, 1980), values refer to general modes of behavior (Hart, 1978). Within this context, values clarification processes may help foster the development of personally and socially preferable states of being.

As an educational endeavor the values clarification process was designed to help individuals identify and examine the relative importance of values (Hart, 1978). Hart (1978) theorized that the valuing process consists of (1) choosing freely from alternatives after considering the consequences of each choice, (2) prizing and publicly affirming choices, and (3) acting or translating choices into observable behaviors.

The leisure education program, implemented by a therapeutic recreation specialist with over two years experience, was designed to augment the other transitional-living services of the day hospital and was adapted from the methods described by Simon, Howe, and Kirschenbaum (1972). Other investigators have employed these adaptations (Pellet-Johnson & Zoerink, 1977; Wolfe & Riddick, 1984; Zoerink, 1988a). The values clarification intervention activities were divided into eight, 90-minute sessions which met weekly. Backman and Mannell (1986) suggested that a combination of attitude change and activity engagement sessions may "be necessary to enable

the individual to act upon newly developed values" (p. 51). Each didactic session was followed by a guided experiential activity. The techniques were implemented using Hart's (1978) recommendations. The topics included (1) *identifying personally enjoyable recreation experiences:* subjects were asked to write 20 recreation activities he or she enjoyed which was followed by a discussion involving participant descriptions of their selections; (2) *choosing from alternatives and examining the choices made:* each person was asked to rank order the choices made in the previous session and discuss the relative personal value of each activity; (3) *examining and publicly affirming the range of alternatives associated with different activities:* each subject verbally affirmed, from two polar positions indicative of complete personal control to no control, his or her relative control over the previously identified recreation experiences, (4) *exploring past events and making judgments:* each person was asked to identify which past events were selected as a result of free choice and which were the result of external pressures; (5) *building a pattern of consistent action:* subjects identified those activities in which they consistently engaged and discussed the motives for establishing this pattern; (6) *examining benefits and alternatives:* participants listed three activity preferences and were asked to examine and discuss the positive and negative consequences of each; (7) *removing barriers to action:* subjects identified the internal and external barriers which prevented them from participating in activities of choice and discussed how such barriers could be overcome to enable them to act on their plans; (8) *planning for the future:* each subject wrote at least three personal goals which he or she intended to complete following the completion of the program.

Following each session a community reentry outing, planned in accordance with the content of the didactic experience, was implemented. These trips included dining out, playing billiards/pool, bowling, nature hiking, traveling to an art museum, shopping, and going to a movie followed by pizza at a restaurant.

The subjects of the informal discussion group participated in reality-orientation based activities with goals and objectives corresponding to their cognitive needs. The group met for one hour each week and was led by the therapeutic recreation specialist. The goals were addressed through recreational experiences (billiards, card playing, etc.) which were conducted within a controlled institutional routine. They did not receive any formalized leisure education or community-based services.

Measures

In the absence of specific instruments which measure personal values related to leisure, two scales that address aspects of values, namely attitudes and satisfaction, and one companion instrument, measuring leisure functioning, were selected. The pre- and posttests were group administered in a controlled setting. Due to varying degrees of subjects' information processing, problem-solving, attending, reading and writing skills, no time limits were set. The test instructions were administered orally. The subjects then completed the scales independently. Other researchers have investigated intelligence quotients using self-report measures. Haberman (1982), in a review of studies examining cognitive dysfunction and social rehabilitation, noted that subjects with TBI completed measures of intelligence, most notably the Weschler Adult Intelligence Scale.

Rokeach (1973) theorized that values, enduring personal beliefs, help determine attitudes. Iso-Ahola (1980) suggested that attitudes are partly based on the salient beliefs one has about an object. In this context leisure attitudes, "the expressed amount of affect toward a given leisure-related object" (Iso-Ahola, 1980, p. 251) were measured by

Crandall and Slivken's (1980) Leisure Ethic Scale (LES). It is a 10-item scale which has been used in other investigations (Zoerink, 1988b) to measure "the degree of positive or negative affect associated with leisure" (Crandall & Slivken, 1980, p. 269). The LES was comprised of three factors: (1) liking leisure, or the general enjoyment and advocacy of leisure; (2) desire for leisure time, a desire for a large amount of leisure; and (3) positive spontaneity, or spontaneous enjoyment of leisure. Examples of items used to measure these factors include "I admire a person who knows how to relax" and "Leisure is great." All items were scored on a four-point Likert-type scale from 1 = Completely Disagree to 4 = Completely Agree. The scale's test-retest reliability coefficients computed over a 5-week period, with presumably nondisabled persons, ranged from .59–.87 (Crandall & Slivkin, 1980). It was reported to have face, content, and construct validity (Crandall & Slivken, 1980; Howe, 1984).

Iso-Ahola (1980) claimed that attitudes consist of cognitive, affective and behavioral components. He suggested that the cognitive component refers to ideas; the behavioral component refers to a predisposition to action; and the affective component as the positive or negative feelings expressed toward an attitude object. To measure the affective component the short form (24-items) of Beard and Ragheb's (1980) Leisure Satisfaction Scale (LSS) was utilized. The LSS-Short Form consisted of six factors: (1) psychological benefits of leisure, (2) educational or intellectual stimulation created by leisure, (3) social relationships created by leisure experiences, (4) relaxation or relief from stress afforded by leisure, (5) physiological or physical fitness goals met by leisure experiences, and (6) aesthetic perceptions created by leisure experiences. A five-point Likert-type scale ranging from 1 = Almost Never True to 5 = Almost Always True was employed. The alpha reliability of the LSS-Short Form, derived from a nondisable sample, was reported to be .93 (Beard & Ragheb, 1980).

Leisure, when defined subjectively, may be viewed as a personally satisfying and meaningful experience in which the perceptions of freedom are maximized. "Perceived freedom," the principle factor that helps to classify an experience as leisure, is determined by intrinsic motivation, perceived competence, perceived control, and playfulness (Ellis & Witt, 1986). Leisure functioning may be described as the perceptions one has about his or her experiences and the outcomes which result from such experiences (Witt & Ellis, 1987). To measure subjects' leisure functioning the Leisure Diagnostic Battery (LDB), Short Form, Version B was employed. It is a 25-item scale using a five-point response format ranging from "strongly agree" to "strongly disagree" which can also be used to test the effects of client services (Witt & Ellis, 1987). The LDB, Short Form, Version B focuses on perceived competence, perceived control, leisure needs, and depth of involvement dimensions and provides a single measure of perceived freedom in leisure (Ellis & Witt, 1986). The alpha reliability coefficient for this adult version, derived from groups with or without disabilities, ranged from .88 to .94 (Witt & Ellis, 1987).

Design and Analyses

A pretest-posttest control group design was used. It is considered to be an experimental design and controls for threats to internal and external validity (Campbell & Stanley, 1966). To test for differences, separate 2 × 2 ANOVAs were computed for (1) each factor of the LES, (2) each factor of the Leisure Satisfaction Scale, and (3) the total score of the LDB, Short Form, Version B. The significance level adopted for this field experiment was set at the .20 level. Social scientists have argued that the error rate is influenced by sample size and the precision of the testing instruments (Franks & Huck,

1986; Labovitz, 1968; Wolfe & Riddick, 1984). Labovitz (1986) recommended that a larger error rate (e.g., .10, .20) be used for small samples. Within small sample sizes even large differences may not reach the customary .05 or .01 levels (Wolfe & Riddick, 1984). In other studies using small samples, larger error rates have been adopted (McAvoy, Schotz, Stutz, Schleien, & Lais, 1989; Wolfe & Riddick, 1984). The circumstances of this investigation and the insensitivity of the instruments to accurately measure values help to substantiate the use of this larger error rate.

In addition to the limitations created by using a larger error rate and small sample size, other factors mediated the findings. The instruments selected for use were generally validated with nondisabled persons. Consequently, responses may have been influenced by language usage and the length of time for completion. The limited use of self-report measures and the general lack of normative data bases for persons with brain injury contributes to the difficulties comparing groups within a rehabilitation setting.

The existence of individual and environmental differences associated with brain injury should not be ignored. Although two individuals may be homogeneous in many respects, one may respond to intervention strategies faster (or slower) than another. The natural course of recovery, present in many brain injured persons, may result in some degree of improvement. The social environments external to the day hospital program may have influenced responses. Interaction with family or within "community" services may have impacted change.

Results

The LES scores revealed no overall differences between groups on scores related to liking leisure (i.e., the general enjoyment of leisure), desire for leisure time, or positive spontaneity. The data indicated that there were no significant differences in the social or physiological dimensions of leisure satisfaction. There were significant pretest to posttest differences for both the leisure education and informal discussion groups in the psychological [$F(1, 23) = 2.09$, $p = .16$], educational [$F(1, 23) = 2.00$, $p = .17$], relaxation [$F(1, 23) = 1.79$, $p = .20$], and aesthetic [$F(1, 23) = 3.62$, $p = .07$] factors of leisure satisfaction. Although the subjects of both groups reported greater perceptions of freedom in leisure, the changes were not significant. Means and standard deviations for all dependent measures are listed in Table 2.

Discussion

The results suggested that both interventions (LE and ID), when applied in a day hospital program for adults with traumatic brain injuries, were correlated with improvement in the patients' psychological, educational, relaxation, and aesthetic satisfaction. Pretest to posttest mean scores, although not significant, revealed that patients also experienced greater satisfaction in the social and physiological dimensions of leisure. Factors extraneous to the experiment such as the influence of the therapeutic recreation specialist or family support systems may have contributed to these results.

Although the patients seemed to like leisure, their scores revealed that they developed less desire for leisure time and positive spontaneity throughout the course of the leisure education program. This may be attributed, in part, to the absence of any personal vocational, social, or avocational goals of individuals who are essentially trying to redefine their lifestyles. Many subjects may have perceived the day hospital's total program consisting of too much free time. Patients scheduled for speech, occupational, or physical therapy often were delayed in receiving immediate service because of schedule conflicts. When coupled with meal times and rest periods, boredom may have resulted.

Table 2.

Means and Standard Deviations for Dependent Measures by Groups

Dependent Measure	LE[a] Pre M (SD)	LE[a] Post M (SD)	ID Pre M (SD)	ID Post M (SD)
LES[b]				
liking	16.67 (3.14)	17.00 (3.46)	15.80 (2.28)	17.00 (1.87)
desire	9.50 (3.02)	8.86 (2.34)	9.99 (1.58)	7.80 (1.30)
spontaneity	15.33 (3.88)	14.86 (2.67)	15.60 (2.07)	15.40 (1.95)
LSS				
psychol.	13.29 (4.31)	16.43 (4.31)	14.20 (2.77)	15.40 (3.85)[d]
educat.	12.57 (4.83)	15.86 (3.24)	14.60 (2.30)	15.00 (3.00)[d]
social	12.71 (4.99)	15.86 (3.24)	15.40 (1.52)	16.00 (3.54)
relax.	12.57 (3.31)	14.86 (3.93)	15.80 (2.59)	17.00 (3.16)[d]
physiol.	13.86 (5.15)	15.14 (3.93)	14.00 (3.39)	15.20 (4.60)
anesthetic	13.00 (4.20)	15.00 (4.58)	11.40 (4.34)	16.40 (3.29)[d]
LDB, SF, B	52.43 (12.63)	50.14 (20.57)[c]	49.60 (4.51)	46.80 (5.81)

[a] LE = Leisure Education; ID = Informal Discussion. [b]LES = Leisure Ethic Scale; LSS = Leisure Satisfaction Scale; LDB, SF, B = Leisure Diagnostic Battery, Short Form, Version B. [c]The lower mean score the greater perceptions of freedom in leisure. [d]$p < .20$.

Although initial test taking by persons with cognitive impairments may be less valid, it seemed they became more insightful and reality-oriented at the posttest administration. It may be that self-report, pencil-paper instruments are appropriate for use with persons whose Rancho Los Amigos scores are about 7. Another consideration, which may have affected the outcomes, was the length of time from pre- to posttest and the potential cognitive growth which may have occurred during this time.

While not a formal component of this study, the therapeutic recreation specialist observed that subjects in the LE group, in contrast to those in the ID group, seemed to exhibit increased awareness of leisure. A concurrent observation noted improved psychosocial adjustment within the LE group. The subjects seemed better able to adapt and appropriately respond to the many social barriers with which they were confronted while using community resources. These qualitative findings suggested that values clarification sessions, when coupled with community re-entry outings, may have contributed to the total rehabilitation of persons with brain injuries.

While these conclusions, which cannot be generalized beyond this sample, are limited by a number of variables, the leisure education program using values clarification strategies and informal discussions were modestly effective in helping brain injured persons experience greater freedom and satisfaction in leisure.

Implications for Further Research

The extent to which the efficacy of this and similar programs improve leisure func-

tioning can be strengthened by attending to other methodological variables. Although the census of many day treatment programs is limited, larger sample sizes with patients exposed to treatment regimes for a longer duration should be considered. In doing so pre- and posttest assessment instrumentation must be validated on persons with cognitive dysfunctions. Perhaps applied behavioral analysis, in contrast to psychological indicators, could be utilized to assess behavior(s) before, during, and after selected intervention strategies. The idiosyncratic nature of cognitive disabilities suggests that treatment protocols be applied to those determined to be cognitively stable. Testing for longitudinal outcomes with persons who exhibit cognitive variabilities may also support the provision of such leisure education programs.

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