

The Impact of Supportive Services on the Self-Esteem of Individuals With Traumatic Brain Injury

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As the United States begins the 21st century, traumatic brain injury remains a major public health issue. Preschool children ages 5 and younger and individuals ages 15 to 24, in addition to the elderly population, are at high risk for traumatic brain injury (National Institute of Neurological Disorders and Stroke [NINDS], 2000). During the 20th century, much progress was made in traumatic brain injury research; however, more advances need to be developed (Clark, Russman, & Orme, 1999).

Traumatic brain injury occurs when a sudden trauma causes damage to the brain (Bracy, 1986). The damage can be focal or diffuse. Traumatic brain injury can result from two types of head injuries. One is called a closed head injury, and the second is named a penetrating head injury. A closed head injury occurs when the head strikes an object suddenly and violently, but the object does not break through the skull. A penetrating head injury occurs when an object penetrates the skull and enters the brain tissue.

The United States spends more than \$48 billion per year on traumatic brain injury, and between 2.5 and 6.5 million Americans have sustained some form of a traumatic brain injury (NINDS, 2000). Because of the complexity of the brain, each person's response to a brain injury can be very different. Many survivors of traumatic brain injury often suffer cognitive, behavioral, and communicative disabilities, and some patients encounter long-term medical complications (Bracy, 1986; NINDS, 2000). Data indicate that approximately 270,000 people sustain moderate or severe forms of traumatic brain injury annually. Among these, approximately 70,000 fatalities result from head injuries. Traumatic brain injuries occur in a variety of different ways. Over half of these injuries are the result of transportation accidents involving automobiles, motorcycles, and bicycles. Such accidents are the major cause of traumatic brain injury in individuals ages 15 to 24. Falls are the most common cause of traumatic brain injuries among the elderly (NINDS, 2000).

Typically, a major adjustment period is imminent for those suffering from traumatic brain injury (Mukherjee, Reis, & Heller, 2003). Individuals who sustain traumatic brain injuries usually experience a loss of self-esteem (Andrews, Rose, & Johnson, 1998; Howes, Edwards, & Benton, 2005; Mukherjee et al., 2003). Thus, it is of paramount importance to implement supportive service interventions as a rehabilitative therapeutic tool to help foster a positive influence on the redevelopment of their self-esteem (Garske & Thomas, 1992). The current study sought to determine if there was a statistically significant difference in the self-esteem levels of traumatic brain injured individuals who were receiving a supportive services intervention compared to those traumatic brain injured individuals not participating in the supportive services intervention. There is agreement in the literature that individuals with traumatic brain injuries who participate in supportive service programs enhance their socialization, self-esteem, and self-confidence skills (Groswasser, Melamed, Agranov, & Keren, 1999; Kendall, 2003), thus better preparing them to become more productive members in society. However, only a small number of investigations have been conducted on this topic. The researchers conducted a study to confirm this finding.

This study was devised to answer the following research question: Is there a statistically significant difference between individuals' self-esteem with traumatic brain injury compared to those individuals without traumatic brain injury subsequent to a supportive services intervention?

Method

Participants

The sample selected for the study consisted of 30 participants between the ages of 18 and 40 who were diagnosed with mild/moderate traumatic brain injury. The mean age of the participants was 29 years. These adults were randomly selected from five Baltimore

metropolitan hospitals. The participants came from ethnically diverse backgrounds (43.3% African American, 40.0% White, 6.7% German, 6.7% Japanese, and 3.3% Chinese). Respondents included 18 (60.0%) males and 12 (40.0%) females. Fifteen subjects were randomly assigned to participate in the experimental group, and 15 were randomly assigned to participate in the control group. A sample size of at least 60 participants in the experimental and control groups was sought; however, due to unavailability of space, only 30 could be accommodated.

Intervention

This study's intervention occurred 5 days a week and lasted for 1 month at the Brain Injury Day Treatment Clinic. The supportive services intervention included the following components:

1. The subjects met with the neuropsychologists once a week for 30 minutes. The neuropsychologists' duties included evaluating and treating the most effective memory strategies (e.g., visual versus verbal) and cognitive remediation to support new learning acquisition.
2. The subjects met with the speech therapists once a week for 30 minutes. The speech therapists' duties included breathing techniques, relaxation strategies that were designed to help the client relax their muscles when speaking, posture control, and oral-motor exercises.
3. The subjects met with the physical therapists once a week for 30 minutes. The physical therapists' duties included evaluating joint mobility, helping build muscle strength, assessing heart and lung function, and helping improve the subjects' performance of daily living activities. The treatments included developmental activities, therapeutic exercises, balance and coordination activities, and mobility training.
4. The subjects met with the occupational therapists once a week for 30 minutes. The occupational therapists' duties included evaluating fine motor skills, visual-perceptual skills, strength, cognitive skills, and sensory-processing deficits. The sessions were one-on-one, but the facility accommodated group treatments with two or more individuals.
5. The subjects met with the vocational counselors once a week for 30 minutes. The

vocational counselors' duties included exploring and evaluating the clients' education, training, work history, interests, skills, and personality traits, and arranging for aptitude and achievement tests to assist in making career decisions. The counselors also worked with the subjects to develop their job search skills and assist them in locating and applying for jobs.

6. The subjects met with the recreation therapists once a week for an hour. The recreation therapists provided treatment services and recreation activities. Treatments and activities included arts and crafts, sports, games, and music or community outings.

The experimental group (15 participants) had sustained a traumatic brain injury and participated in the supportive services intervention. The control group (15 participants) also sustained a traumatic brain injury; however, they were not involved in the supportive service program. The control group continued their normal activities in their respective group homes.

Materials

The researchers used the adult form of the Coopersmith Self-Esteem Inventory (Coopersmith, 1989) to measure the sample's self-esteem level. This inventory has 25 statements, and the participants check the statements either "like me" or "unlike me." Scores can range from a low of 0 to a high of 100. Higher scores on the Coopersmith Self-Esteem Inventory denote positive self-esteem. An internal consistency reliability of approximately .9 and a concurrent validity of .33 have been reported (Kimball, 1972; Simon & Simon, 1975).

Procedure

The researchers were given permission from the director of the Brain Injury Day Treatment Clinic to conduct this study at that site. Following the director's approval, Coppin State University's Institutional Review Board granted the researchers permission to proceed with the study. The researchers distributed informed consent forms to the participants for their signatures.

The Coopersmith Self-Esteem Inventory was given to the experimental and control groups before and after (pre- and posttest) the implementation of the supportive services intervention. The researchers analyzed the responses using the SPSS 13.0 database.

Results

The researchers implemented a pre- and posttest design using a control group to measure the effects of the treatment. The pretest served as a statistical control used to generate change scores.

The original design called for two-sample t-tests to measure the mean differences between the experimental and control groups. Since this study's sample size was small, population variances were not equal, and there was skewness in the data, parametric assumptions were violated. Accordingly, nonparametric statistical tests were used to test the null hypothesis.

Pretest and posttest scores on self-esteem were computed for the experimental and control groups (see Table 1). The experimental group's posttest self-esteem mean score ($M = 64.27$, $SD = 18.61$) rose from the pretest self-esteem mean score ($M = 46.40$, $SD = 27.46$). The control group's mean posttest self-esteem score ($M = 28.93$, $SD = 10.92$) was lower than at pretest ($M = 33.60$, $SD = 11.49$).

The Mann Whitney test was used to test differences between the experimental and control groups. At pretest, the experimental and control groups were statistically equivalent ($p = .174$). After the treatment, the observed posttest sample differences were greater than expected by random assignment ($p = .000$).

The Wilcoxin Signed Ranks test was used to determine if the paired pre-post changes were significantly different within the treatment. The experimental group showed a statistically significant gain ($p = .001$), and the control group showed a statistically significant decrease ($p = .016$).

Although the researchers logistically selected nonparametric tests for data analysis, which typically tend to be less precise, the loss of statistical power did not affect the final result (posttest differences) since there was a large difference between the experimental and control groups based on the treatment.

Table 1.
Self-Esteem Means and Standard Deviations of the Experimental and Control Groups

Group	<i>N</i>	Pretest <i>M</i>	Pretest <i>SD</i>	Posttest <i>M</i>	Posttest <i>SD</i>
Experimental	15	46.40	27.46	64.27	18.61
Control	15	33.60	11.49	28.93	10.92

Note. The higher the score, the greater the self-esteem

Discussion

Similar to the conclusions of Groswasser et al. (1999) and Kendall (2003), this study revealed an increase in self-esteem among individuals with traumatic brain injuries subsequent to a supportive service intervention. The researchers recommend continued use of supportive service programs in conjunction with other counseling services (e.g., individual and group counseling) to help facilitate and improve the skills of individuals with traumatic brain injury.

Particularly noteworthy was a statistically significant decrease in self-esteem for members of the control group ($p = .016$). One interpretation of this finding is that the posttest was measured around the holiday season (December), and several of the participants in the control group reported feeling depressed.

Based on this study's limitations (short-term intervention, small sample size, few sample sites, self-report instrument), the researchers recommend the following: First, a longitudinal study should be implemented to determine the long-term effects of the supportive services intervention. A change in self-esteem may not be immediately evident because it may take some traumatic brain injured patients longer to realize that some of their aspirations will come true. Second, a larger sample size is needed to increase the power of statistical tests used. As a result, age, gender, and cultural background of the participants could be further explored. Third, the sample should include additional sites of individuals with traumatic brain injury to increase the probability that the results from the sample can be generalized to the population. Fourth, since the participants may not have responded realistically and with total honesty to the inventory statements, the researchers suggest that future studies incorporate interviews with the subjects to allow for a better basis of comparison.

Conclusion

This article addresses the effect of a supportive service program on the self-esteem of individuals with traumatic brain injury. There was evidence suggesting that the treatment provided the participants with some degree of self-confidence. Nonetheless, the researchers advise a 1- to 2-year follow-up longitudinal study to gauge these participants' self-esteem. The researchers plan to conduct future studies measuring the effect of a supportive service intervention on other variables (e.g., self-efficacy, anxiety, anger, and loneliness). Based on this study's results, it can be deduced that supportive

service programs can provide additional assistance to professional counselors, psychologists, and social workers in their work with traumatic brain injured clients.

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