A case study in the use of cognitive-behavioral treatment of emotional and behavioral symptoms related to a traumatic brain injury

Urszula Kobylinska
Rowan University

Follow this and additional works at: https://rdw.rowan.edu/etd

Part of the Psychology Commons

Let us know how access to this document benefits you - share your thoughts on our feedback form.

Recommended Citation

This Thesis is brought to you for free and open access by Rowan Digital Works. It has been accepted for inclusion in Theses and Dissertations by an authorized administrator of Rowan Digital Works. For more information, please contact LibraryTheses@rowan.edu.
A CASE STUDY IN THE USE OF COGNITIVE-BEHAVIORAL TREATMENT OF EMOTIONAL AND BEHAVIORAL SYMPTOMS RELATED TO A TRAUMATIC BRAIN INJURY

By
Urszula Kobylinska

A Thesis
Submitted in partial fulfillment of the requirements of the Master of Arts Degree of The Graduate School at Rowan University September 23, 2002

Approved by _________________________________

Date Approved 10/1/02

© 2002 Urszula Kobylinska
ABSTRACT

Urszula Kobylinska
A CASE STUDY IN THE USE OF COGNITIVE-BEHAVIORAL TREATMENT OF
EMOTIONAL AND BEHAVIORAL SYMPTOMS RELATED TO
A TRAUMATIC BRAIN INJURY
2001/02
Dr. Janet Cahill
Masters of Arts in Mental Health Counseling

The purpose of this study was to examine the effectiveness of cognitive-behavioral therapy techniques with traumatic brain injury (TBI) individuals using a case study format. The subject of this study was a 54-year-old woman who suffered a traumatic brain injury in automobile accident. For the purpose of this study, she was seen over six-month period beginning in January 2002. Major emphasis was on reducing depression and anxiety related to TBI and increasing her social and vocational functioning. Anxiety and depression were pre- and post-tested using the Beck Depression Inventory and Sheehan Anxiety Scale. Post-testing suggested significant decreases in both depression and anxiety. The subject also reported improvement in social and vocational functioning. Both the client and the therapist assessed the program to be effective and meeting the therapeutic goals. Recommendations for continue therapy and further research were made.
MINI-ABSTRACT

Urszula Kobylinska
A CASE STUDY IN THE USE OF COGNITIVE-BEHAVIORAL TREATMENT OF EMOTIONAL AND BEHAVIORAL SYMPTOMS RELATED TO A TRAUMATIC BRAIN INJURY
2001/02
Dr. Janet Cahill
Master of Arts in Mental Health Counseling

The purpose of this study was to investigate the effectiveness of cognitive-behavioral treatment of emotional and behavioral symptoms related to traumatic brain injury using a case study format. The results of this study suggested that cognitive-behavioral techniques were effective, since client’s depression and anxiety were reduced and her social and vocational functioning were improved after six months of treatment.
ACKNOWLEDGMENTS

I would like to thank Dr. Janet Cahill and Dr. James Haugh for their helpful comments and assistance in the preparation of this thesis.

A special thanks goes to Dr. David A. Davenport for sharing his knowledge, experience, and encouragement in conducting this study.

Finally, I would like to gratefully thank the subject who so willingly participated in this study and shared her experience.
TABLE OF CONTENTS

1. Psychosocial Assessment / 1
   1.1 Initial Assessment / 1
   1.2 Review of Prior Assessments / 11
   1.3 Summary and Recommendations / 13

2. Differential Diagnosis / 16

3. Literature Review / 21
   3.1 General Information on Traumatic Brain Injury (TBI) / 21
   3.2 Mild Traumatic Brain Injury / 23
   3.3 Treatment Options for Traumatic Brain Injury / 29
   3.4 Cognitive-Behavioral Treatment of Emotional and Behavioral Problems following Mild Traumatic Brain Injury / 38

4. Normative Practice/Outcomes / 43
   4.1 Outcome Measures / 43
   4.2 Treatment Plan / 47
   4.3 Treatment Outcomes / 54

5. Comparison of Best and Normative Practice / 62

6. Summary and Conclusions / 68

Reference / 72

Appendix / 80
Chapter 1

Psychosocial Assessment

Identifying Information

Name of Client: Ms. Smith (real name confidential)

Age of Client: 54 years old

Name of Researcher: Urszula Kobylinska, M.A.

Name of Supervisor: David A. Davenport, Ed. D.

1.1 Initial Assessment

Presenting Problem

Ms. Smith was seeking psychological help to cope with emotional difficulties resulting from functional deficits associated with trauma to the brain caused by a car accident which occurred several years earlier. Furthermore, she reported needing help to recognize her strengths and limitations in the vocational area. Finally, she reported needing assistance in finding and sustaining employment.

Ms. Smith stated she experienced several physical disturbances resulting from a car accident, such as permanent loss of smell, back pain, and headaches that she described as gradually diminishing in frequency and severity. She also reported having some cognitive impairments resulting from the brain injury, such as difficulties with retrieving words, making daily decisions, organizing thoughts, and remembering names and details of recent events. During the initial interviews, she demonstrated difficulties
remaining on topic and maintaining her train of thought. Furthermore, significant
tangential speech was observed during the assessment.

In response to the brain injury, Ms. Smith also reported a number of emotional
disturbances, which included depression and anxiety. Ms. Smith reports that she feels sad
almost all the time since the car accident. Additionally, she reported having difficulty
going up in the morning, initiating any activities, and completing everyday tasks. She
felt tired and had difficulties staying awake without taking naps during the day. Simple
activities such as cleaning house, getting dressed and putting on her make-up were very
difficult for her. She stated she had a strong desire to maintain her appearance, but this
was difficult for her. Despite these stated limitations, her hygiene and general appearance
was good during the initial interview.

Ms. Smith presented unrealistic negative self-evaluation and ruminates over
minor failures. She seemed to be emotionally very sensitive concerning her difficulties
with remembering facts, retrieving words, and focusing on a topic. She was intolerant of
her cognitive and language difficulties and wanted to return to her high, pre-accident
functioning. She reported crying a lot, which was also observed during the assessment.

Ms. Smith denied any current suicidal ideation or intent at the time of the initial
interview. In addition, the client’s history did not reveal any past suicidal thoughts or
attempts.

In addition to Ms. Smith’s reported depressive symptoms, she also indicated that
she was experiencing a high level of anxiety. She reported that the majority of this
anxiety centers on her difficulties with speech and her fear of negative evaluations by
others in social and professional contexts. She was afraid she would not be able to
understand complex messages and to give quick and intelligent answers. Her anxiety rose whenever she had difficulties remembering or retrieving words. She reported that she avoided some social interactions in order to prevent possibility of feeling embarrassed.

**History of Complaint**

Ms. Smith had been experiencing physical, cognitive and emotional difficulties since the brain injury. She has been medically assessed and treated by an internist, neurologist, neuropsychologist, cognitive therapist and speech-language pathologist. Ms. Smith reported that the treatment she had received from other professionals have helped with her physiological, cognitive and language problems, but that she did not feel that her emotional adjustment had been addressed as of yet. As a result, she was referred for more extensive treatment to help her emotional adjustment. The emotional difficulties include the aforementioned depression and anxiety. Both symptoms have impaired the client’s everyday functioning in areas of family life, socializing and employability.

Ms. Smith reported having good relationships with her family and friends until the car accident. She had always considered herself as an optimistic, active, and outgoing person. She reported her cognitive functioning prior to the accident was considered above average. Specifically, she stated that when she was in high school she obtained a tested IQ of 135 on a school evaluation. She also reported that she was always highly valued by her family and friends for her academic and intellectual knowledge. However, cognitive and language difficulties that occurred after the accident significantly decreased her self-esteem and were a primary factor associated with her depression, according to her report. She has isolated herself from family members and friends because of her embarrassment about these difficulties.
Ms. Smith’s sense of self-worth dropped further after her employment was terminated approximately two years after the accident. According to her report, her termination was indirectly related to her cognitive difficulties caused by the brain injury. Ms. Smith had worked as a professional office worker for several years. Her job was intellectually demanding and required strong math skills. However, she was able to keep her job after the car accident because of understanding and help from a supervisor who was willing to check her assignments and correct errors. A new supervisor, in the client’s opinion, did not display any understanding of her situation and did not offer help. As a result, Ms. Smith was not able to meet the job requirements without having support from other staff members, which led to her employment being terminated.

**Household Composition**

Ms. Smith has lived alone for approximately 10 years. She has two children, a 30-year-old daughter and 27-year-old son. Both live on their own and are within driving distance of Ms. Smith’s home. The client reported having limited contact with her children since the car accident.

**Developmental and Social History**

Ms. Smith reported that there was no evidence of any significant developmental delays. She reported that she was able to recite long sections of literature as an adult, which was a great source of pride to her.

Ms. Smith graduated high school with honors, at the age of 16. She reported that she obtained a Bachelor degree in English and a Masters degree in Education and English. She returned to school in her late 40’s to earn an additional degree in financial services.
Ms Smith did not report having any academic or social difficulties in school. She reported having many friends in high school and being involved in several school activities including dramatics.

**Family History**

Ms. Smith’s family of origin consists of a father aged 82, a mother aged 78, and two younger sisters aged 52 and 47. Her parents live together in their own apartment in a nearby state. Both of her sisters live with their own families in different states on opposite coasts.

Ms. Smith reported having warm and close relationships with her family of origin. Further, she reported that she keeps in touch with her elderly parents and two sisters. Family members seem to be caring and supportive to each other in spite of the geographic distance. They call each other frequently and are involved in the recovery of their father who is suffering from a serious illness.

Ms. Smith reported that her family has always respected her knowledge and academic achievements, and that she has held a strong and dominant position in the family. For example, she stated that she was assigned as an executor of her parents’ will prior to the car accident. However, one of her sisters took over this responsibility after the accident, at the request of her parents. Ms. Smith understands the necessity of the change. However, it seemed painful and degrading to her. She felt the family did not trust her abilities and did not respect her intellect and judgment.

Ms. Smith was married at the age of 19. She described her marriage as difficult, because she reported being ignored and humiliated by her husband. In addition, she stated that he did not value her skills as a mother and housewife, and that he was not able to
share her educational and professional success. According to Ms. Smith, he was involved in extra-marital affairs and he left the household after 24 years of marriage. She divorced him four years later. She has had very little contact with her ex-husband since then.

Ms. Smith’s son left the household with his father in 1991 when he was 16 years old. According to Ms. Smith, he dropped out from a high school while under the “negative influence” of his father. However, she added that his attitude changed after he got married, because his wife encouraged him to return to school and obtain a college degree and a teaching certification. Ms Smith added that she is very proud of her son’s academic achievements. He has a two-month-old son, with whom Ms. Smith would like to have more contact.

Ms. Smith describes her relationship with her son and a daughter prior to the accident as good, stating that they visited and called each other frequently. However, she noted that the relationship had changed substantially after her car accident, as she sees them with less frequency, and she feels that the relationship with them is less close. Ms. Smith reported that she feels some of the difficulties in her relationship with her children are due to her feeling intimidated by her cognitive and language disabilities. Specifically, she reported that she feels she is not able to keep up with intellectual conversations during family gatherings, and that she becomes easily confused when confronted with multiple stimuli. Her perceived inability to give intelligent and quick answers seems to be very upsetting to her, and she felt her children did not understand her difficulties and become very impatient when she tries to explain her point. As a result, she became easily involved in arguments with them. She also complained that her children do not visit her any more and keep phone conversations brief. The client feels ignored and “invisible”
since the accident. She perceived, her role as a mother and a grandmother as limited, which was very upsetting to her.

**History of Substance Use and Abuse**

Ms. Smith denied alcohol and drug abuse or dependency in the family and in her life as well. Ms. Smith reported that she might have a glass of wine on special occasions. She denied even occasional or experimental use of drugs at any time in her life.

**Medical and Psychiatric History**

a. **Client**

Ms. Smith considers herself a healthy person and she did not report any history of chronic medical illness. The only health complaints she reported included having pneumonia twice and having to have a kidney stone removed. Ms. Smith appears about 40 pounds overweight. She reported that she gained weight during her marriage, after she started taking birth control pills. She tried to watch her diet and attended Overeater Anonymous Group. She has worn glasses since the third grade.

Ms. Smith reported experiencing some depressive symptoms in reaction to her divorce. She isolated herself from many social interactions at that time. She lost the energy to deal with everyday tasks, though no suicidal ideation was reported. She did not believe she was able to function on her own after the divorce. The depressive symptoms diminished gradually after a short period of time, even though she did not seek professional help. As her self-described depression lessened, she was able to focus on her job, family and social life. She became gradually an independent and successful social and vocational individual. She was able to go back to school, obtain additional
professional certifications and begin a new career. This helped to improve her difficult financial situation.

The medications she has been taking currently include: Wellbutrin, 150mg twice a day, vitamin E, vitamin B complex and ginseng. A family doctor prescribed Wellbutrin after the accident to decrease her symptoms of depression. Ms. Smiths indicated that the medication improved her mood slightly. There is no report of any other medication history.

b. Family

Ms. Smith denied any history of psychiatric illness within the family. She reported that her parents had some medical problems. Specifically, her mother had a hysterectomy, and also lost her hearing. Her father had a small stroke, has heart problems and currently suffers from cancer. Ms. Smith reported that neither of her sisters has experienced any serious illnesses.

Education and Job History

As stated previously, Ms. Smith reported that she obtained her Master’s degree in Education and English and an Associate degree in financial services. Furthermore, she passed several additional high-level certifications. Ms. Smith’s professional careers include positions in teaching English and English as a Second Language (ESL) in public schools, teaching writing and reading at a community college, working as a bookkeeper and most recently in the accounting field. She was unemployed at the time of the initial interview.

Her current sources of income include the insurance settlement for the accident and loans from her parents. Ms. Smith stated that unemployment and lack of a stable
income are particularly distressing to her for several reasons. First, a lack of stable job and income create feeling of insecurity and unpredictability. Second, an acceptance of financial support from the parents is humiliating because it limits the client's previous level of independence. Third, Ms. Smith feels like a useless individual who is unable to contribute to the society.

Her education and professional career has been always a source of pride and self-worth to the client. She reported that she was a dedicated and effective teacher and she had good rapport with her students. She also reported being very effective in her last job

Other Agency Involvement

Ms. Smith is currently being treated by several health professionals, including a cognitive therapist, speech-language pathologist and a current therapist. The client perceived all professionals as the most important and helpful sources of support, since she felt that nobody was able to fully understand her situation at that time. All specialists cooperate with each other by sharing the results of assessments, information about therapy, and updates on the client's progress in treatments.

Social Support

Ms. Smith stated that her relationships changed substantially after the car accident, particularly with family members. Nevertheless, Ms. Smith had several friends who she views as being reliable and supportive. One of them has offered to keep her company to clean and organize her house, which Ms. Smith reports helping her to get motivated, focus on a task and finish tasks.

Ms. Smith was a very active person involved simultaneously in many activities before the car accident. She was on the board of a non-profit organization. She was
involved in the activities organized by her church. She was volunteering as a tutor in a public school. She participated in the “Story time” action in the library. She taught sewing to the disabled individuals. Finally, she was a Girl Scout leader when her daughter was young. Ms Smith was able to participate in many of these activities while holding a job and being a wife and a mother.

Ms. Smith has limited her social activities since the car accident. She gradually became more open toward others, but her social contacts are not as diverse as they were before the accident. Ms. Smith is currently involved in the Overeaters Anonymous Group and a Brain Injury Support Group.

Situational Stressors

Ms. Smith’s situation is difficult and complex. Specifically, she reported several additional life difficulties that complicated her recovery. First, the earlier mentioned lack of perceived by Ms. Smith understanding and support from the client’s children.

Second, Ms. Smith was laid off and is currently unemployed, which has significantly reduced her self-esteem and income.

Third, Ms. Smith’s father suffers from a cancer, and his condition is unstable. This situation increases the level of anxiety experienced by the client. It is also a source of frustration caused by the fact that the client is not able to provide sufficient support for her parents.

Coping Mechanisms

Ms. Smith has acquired several skills that help her to improve everyday functioning. First, she uses some organizational strategies, which include keeping an appointment calendar, planning everyday activities and taking notes during treatment
sessions. These techniques compensate for problems with memory and help her to organize thoughts, prioritize goals and engage the client in everyday activities.

Second, Ms. Smith exercises 15 minutes every day. She reports that exercise helps her to overcome restlessness, promotes healthy style of life and builds a positive attitude toward herself.

Third, Ms. Smith tries to check the directions before each trip. She reports that this has helped her compensate for problems with memory and decreases her fear of getting lost.

Finally, Ms. Smith is involved in two support groups: Overeaters Anonymous and a Brain Injury Support Group. She reports that both groups reduce her social isolation, help promote her understanding of her problem, and increase her sense of self-esteem.

1.2 Review of Prior Assessments

The Initial Speech-Language and Cognitive Evaluation done several years ago by a speech-language pathologist, was available during the initial assessment. Results of this assessment indicated that Ms. Smith suffers from a "shearing type closed-head" injury caused by the car accident. The speech pathology assessment also mentioned a results of neuropsychological assessment, which indicated that Ms. Smith symptoms were consistent with diagnosis of "Postconcaussion Syndrome and Adjustment Disorder with mixed emotional factors directly related to the accident."

According to the speech-language pathologist, the brain injury impaired client's physical, cognitive, language and emotional functioning. Physical consequences of the
brain injury included: anosmia, (permanent loss of smell), back pain, and gradually diminishing headaches. There was no evidence of other severe physical injuries resulting from the accident. The report indicated that the client is able to function independently and take care of herself.

The report concluded that that Ms. Smith presented some cognitive impairments. These impairments included: first, long- and short-term memory deficits. Examples of these deficits were: problems with retrieving words, remembering details of previously learned knowledge, retaining people’s names, details of conversations and recent events. Second, the report stated that Ms. Smith had difficulties with organizing and integrating thoughts. She also experienced problems with planning and decision-making. Finally, according to the report, Ms. Smith presented difficulties with concentrating; she loosed her train of thoughts, and was easily distracted by present background noise. The speech-language pathologist noted that the client appears to be “a very intellectually capable woman,” whose cognitive functioning may remain fairly high, as long as “distractions are kept to a minimum.”

The speech-language pathologist also noted in her report that Ms. Smith presented several language deficits at the time of the speech evaluation. For example, although Ms. Smith was able to “comprehend basic conversational speech content,” she had some difficulties with “processing lengthy, complex, or unfamiliar verbal information.” Examples of other language difficulties included problems with reading comprehension, reading retention, and communicating her ideas in a clear, concise manner. Furthermore, according to the report, Ms. Smith’s written expression skills were characterized by “a reduction in legibility, spelling errors, grammatical errors, reduced fluency, and difficulty
organizing her thoughts for written discourse.” The speech-language pathologist noted that the client’s speech was often tangential.

The report emphasized that the head injury experienced by Ms. Smith “must be considered mild in nature by definition and, indeed, the residual cognitive difficulties are relatively mild, although they still represent a reduced level of functional capability in relation to her estimated above average abilities.” The speech-language pathologist stated that Ms. Smith is a very intelligent woman who is use to functioning at a high level. Consequently, even average testing scores may actually represent impairment in her capabilities. The speech-language pathologist also suggested that the cognitive and language difficulties may be associated with emotional sequelae that interact with these difficulties in a “vicious-cycle manner.”

According to the report’s prognosis, Ms. Smith’ functioning may be improved given her level of motivation and willingness to learn new compensatory skills. Nevertheless, “it would be unrealistic to expect her to ever function in the same capacity as she did prior to her brain injury.”

The report recommended Speech-Language and Cognitive therapy two times a week to assist with recovery of functional communication and cognitive skills. Furthermore, the report suggested referral to a psychologist to address client’s depression and adjustment difficulties.

1.3 Summary and Recommendations

Ms. Smith is a 54-year-old woman who was referred for treatment of emotional distress resulting from a traumatic brain injury suffered in an automobile accident. As a
result of this accident, Ms. Smith is experiencing a number of physical and cognitive deficits that have been extremely difficult for her to deal with.

Ms. Smith’s physical difficulties included permanent loss of smell, back pain, and headaches.

Ms. Smith’s cognitive disturbances included deficits in short- and long-term memory, difficulties with retrieving words, making daily decisions, organizing thoughts, and remembering names and details of recent events. Furthermore, her ability to maintain focused attention and concentration has been impaired, and it can be additionally compromised by external noise and multiple stimuli. Finally, her verbal communication was often tangential.

As a result of physical and cognitive difficulties, Ms. Smith has been experiencing anxious and depressive symptoms. Depressive symptoms included crying, feeling sad, being fatigued, having difficulty getting up in the morning, initiating any activities, and completing everyday tasks. The client also demonstrated an unrealistic, negative self-evaluation and an intense emotional response to any difficulties. Such a response was particularly strong in situations when she had to struggle with cognitive and language limitations. Symptoms of anxiety, such as fear of expected failure and negative evaluations by others were present when she was experiencing cognitive and language problems in social and professional settings.

Most of these emotional difficulties persist in spite of Ms. Smith’s efforts in therapy conducted by the speech-language pathologist. It seems that the emotional response to these struggles plays a significant part in the client’s full recovery. Because the physical and cognitive deficits are being treated by other professionals, it is
recommended that the focus of the current treatment is on depression and anxiety. Therefore, Ms. Smith is being evaluated for depression and anxiety related to difficulties with adjusting to her physical, cognitive and vocational problems related to the car accident. The evaluation will be followed by formulation and implementation of a treatment plan. The treatment will address both depression and anxiety.
Chapter 2

Differential Diagnosis

Axis I

309.28 Adjustment Disorder with Mixed Anxiety and Depressed Mood, Chronic.

DSM-IV (2001, p. 679) defines an Adjustment Disorder as a “psychological response to an identifiable stressor or stressors that result in the development of clinically significant emotional or behavioral symptoms.” In order to meet criteria for the diagnosis of an Adjustment Disorder, the symptoms have to develop within 3 months after the stressor has occurred and the symptoms must be accompanied by either “marked distress that is in excess of what would be expected from exposure to the stressor” or by “significant impairment in social or occupational (academic) functioning” (DSM-IV, p. 683).

Ms. Smith symptom picture appears consistent with the diagnosis of an Adjustment Disorder. Specifically, she developed emotional and behavioral symptoms in response to an identifiable stressor such as an automobile accident. In reference to the diagnostic criterion of “marked distress” Ms. Smith developed emotional symptoms that included feeling sad, loss of self-esteem, feelings of fatigue and restlessness, and increased anxiety while talking to people.

The diagnostic criteria of significant impairment in social or occupational functioning were documented in both of these areas. For example, Ms. Smith isolated herself from interactions with friends and family members. Furthermore, she lost a job following the injury and she is afraid she will not be employable any more. Ms. Smith
believes that the loss of cognitive skills resulting from the accident caused her to lose her job.

The specifier, “Chronic” was used because the symptoms lasted longer than 6 months after the termination of the stressor. According to DSM-IV criteria, symptoms of Adjustment Disorder usually do not persist longer than 6 months after the stressor has terminated. However, if the nature of the stressor is chronic, the symptoms may endure longer. The consequences of the car accident, such as loss of smell, decrease of cognitive and language abilities are persistent and probably, to some extent, irreversible. Thus, the emotional and behavioral difficulties experienced by the client may also persist. Therefore, Adjustment Disorder was coded in this case as “Chronic.”

Finally, the specifier “with mixed anxiety and depressed mood” was given because Adjustment Disorders are coded according to the subtype that best characterizes symptoms displayed by the client. Specifically, Ms. Smith exhibits both anxiety and depressive symptoms; therefore, Adjustment Disorder with Mixed Anxiety and Depressed Mood was used.

**Differential Diagnosis**

An Adjustment Disorder can be only diagnosed if the symptoms are a response to a specific stressor and they do not meet the criteria for another Axis I disorder. In order to ensure diagnostic clarity, a number of other diagnostic options were explored. These diagnoses and the justifications of those are explored below.

First, Ms. Smith exhibits some of the symptoms characteristic of a depressive episode. According to the DSM-IV (2001, p.355) Major Depressive Disorder can be differentiated from Adjustment Disorder with Depressive Mood by the failure to meet the
full criteria for a Major Depressive Episode. Specifically Ms. Smith fails to meet criteria of weight gain or loss, sleep disturbance, psychomotor retardation, diminished ability to think or concentrate, or recurrent thoughts of suicide or death. Ms. Smith did not experience a weight gain or loss after the accident. Her sleep disturbance and difficulty in concentrating and thinking appear to be functions of the neurological insult suffered in the car accident. Finally, the client does not display or report any suicidal ideation. Symptoms experienced by Ms. Smith did not meet the full criteria for Major Depressive Episode. Major Depressive Disorder cannot be diagnosed since the diagnostic criteria for Major Depressive Episode are not met.

Second, although the psychological distress experienced by Ms. Smith is related to a General Medical Condition, there is no medical evidence that the mood disturbances are etiologically related to the brain injury. It seems that symptoms of depression occurred in response to the psychological stress of having the medical condition. Thus, Mood Disorder Due to a General Medical Condition cannot be diagnosed in this case.

Third, distressful symptoms experienced by the client have developed after a traumatic event that involved serious physical injury. This might suggest a diagnosis of Posttraumatic Stress Disorder or Acute Stress Disorder. Ms. Smith certainly experienced a traumatic event but did not have the symptoms characteristic for these disorders such as, intense fear, horror, recurrent distressing dreams of the event, flashbacks, avoiding thoughts and activities associated with a trauma, are not present in this case. Therefore, both mentioned disorders could not be diagnosed.

In summary, the psychological symptoms experienced by Ms. Smith do not meet full criteria for any of the disorders discussed above. Taking into consideration the
predominant symptoms, their severity and duration, Adjustment Disorder with Mixed Anxiety and Depression, Chronic was diagnosed.

**Axis II**

**V 71. 09** No diagnosis on Axis II.

**Axis III**

**Traumatic Brain Injury**

According to the report submitted by speech-language pathologist, the brain injury experienced by Ms. Smith caused cognitive, expressive language and receptive language deficits.

Cognitive deficits include: difficulties with long-term and short-term memory, abstract reasoning, attention, thought organization, sequencing and planning, decision making and problem solving.

Ms. Smith’s expressive language deficits include: impairment of word retrieval, difficulties with organizing thoughts and expressing them in a clear and concise way. Her written skills have been limited in legibility, length, spelling, grammar errors, and clarity of expressed thoughts.

Ms. Smith presented several receptive language problems during speech-language and cognitive evaluation. For example, she had difficulties in processing long, complex and unfamiliar verbal information. It has been noted that her auditory processing skills were compromised additionally in the presence of background noise. Her reading skills have been also diminished. Finally, she had difficulties with comprehension of complex texts, keeping track of lines while reading and text retention.
Axis IV

Psychosocial and Environmental Problems

- Problems with primary support group: the client’s father has bladder cancer, which is very stressful for the whole family.
- Occupational problems: Ms. Smith is currently unemployed and has had difficulties finding a job.
- Economic problems: Ms. Smith does not have a stable income.
- Problems related to her social environment: Ms. Smith does have enough social support. She has isolated herself from social interactions since the car accident.

Axis V

Global Assessment of Functioning (GAF) Scale

GAF = 54 at time of initial assessment

Ms. Smith’s functioning was at the moderately impaired level at the time of the initial assessment. She experienced some minor cognitive and language deficits caused by the brain injury. She displayed symptoms of depression and anxiety due to difficulties with adjustment to her car accident and resulting functional impairment related to brain injury. She had isolated herself from social interactions. Finally, she lost her job and has had difficulties finding a new one. In spite of all mentioned difficulties she was still physically and cognitively capable to live independently and to take care of herself.
Chapter 3

Literature Review

3.1 General Information on Traumatic Brain Injury (TBI).

Most studies on TBI have adopted a definition of traumatic brain injury proposed in 1997 by the Brain Injury Association. Gerstenbrand and Stepan (2001) quoted the definition and described traumatic brain injury as an: “...insult to the brain which is not of degenerative or congenital nature but caused by external physical force.” The research indicated that males are more likely to experience the injury in comparison to females. Males tend to engage in high-risk behaviors at a greater rate than females and are more likely to be involved in injury prone occupations. The most incidences occur to individuals in the age range between 15 and 24. Road accidents are the biggest cause of such injuries (Rose & Johnson, 1996).

Patients with TBI may experience numerous symptom patterns related to the nature, location and severity of the brain damage. Some symptoms/conditions are acute and they require immediate medical interventions. Some are very subtle and diffuse with minimal loss of function. Some of them, such as psychological adjustment to changes caused by the injury, may appear far after the initial injury. Common symptoms, such as loss of memory, may not occur at all. Some symptoms are transient and they diminish or disappear shortly after the injury. Some of them require long-term rehabilitation with no warranty of return to the pre-injury functioning (Hill, 1999; Oddy, Yeomas, Smith & Johnson, 1996; Rose & Johnson, 1996).
The literature discusses various types of brain injury. For example, there are open head injuries when the external forces break the skull and closed head injuries with no skull fracture. Some authors also distinguish a third kind of head injury, crushing injuries, "in which the head is caught between two surfaces" (Rose & Johnson, 1996). Some injuries involve mid-brain and brain stem damage. There are also cortical injuries, which is the main focus of this paper. Smith (1996) listed two categories of brain damage: primary and secondary. The primary injury is defined as being caused by the external mechanical forces applied directly to the skull. These forces may cause diffuse axonal injury, intracranial blood clot (haematoma), or skull fracture. Diffuse axonal injury occurs when the soft consistency of the brain moves in response to a rapid motion, which leads to stretching and tearing axonal connections. Blood clots are usually caused by tearing of the blood vessels localized in the brain. Diffuse axonal injury and hematoma might occur with or without skull fracture. Primary brain injury may lead to the secondary type of injuries, such as reduction in brain oxygen supply, swelling of brain substance, raised pressure within the skull and changes in blood flow. The secondary brain injury may be prevented or lessened by an appropriate and immediate medical intention (Smith, 1996).

There are several studies that explore relationship between injury location and impairment of particular cognitive or behavioral functioning. Rose and Johnson (1996) discussed four cerebral lobes and the way they mediate cognitive and behavioral functioning. The frontal lobe is described as responsible for planning, sequencing, control of motor movement, and monitoring various behaviors. The frontal lobe also has some areas involved in "personality" processes. The parental lobe governs somatosensory
functioning, attention, and some aspects of language and memory. The temporal lobe is active in integration of visual and auditory systems, language processing, and transformation information from short-term to long-term memory. Some areas of temporal lobe are involved in the regulation of personality, particularly aspects of sexual and aggressive behavior. The occipital lobe analyzes visual information and is responsible for sensory coherence (Rose & Johnson, 1996). Damage of these parts of the brain can lead to impairment of functions that these areas are responsible for.

Some research has recommended a classification system of three degrees of TBI depending upon its severity (American Congress of Rehabilitation Medicine, 1993; Gerstenbrand & Stepan, 2001). They are: mild, moderate and severe brain injury. The Glasgow Coma Scale (Teasdale & Jannett, 1974) is the most widely used measure that initially helps determine TBI severity when coma is present. This measure “rates the patient’s responsiveness in terms of eye opening, motor responsiveness, and verbal responsiveness. It has a maximum score of 15 and is used to monitor the depth of coma and to plot deterioration and recovery” (Oddy & Alcott, 1996, p.54). There are some other measures to determine initial losses and track their recovery, if any. Examples of these measures are the Halstead-Reitan Neuropsychological Test (Reitan, 1955) and the Lauria-Nebraska Battery (Golden, Hammecke, & Purish, 1978).

3.2 Mild Traumatic Brain Injury

The main focus of this paper is Mild Traumatic Brain Injury (MTBI). MTBI is the most frequent diagnosis among the types of brain injury. Some researchers noted that mild TBI makes up about 80% of overall TBI population (Arciniegas, et al., 1999; Ruff,
2001). Different terms are found in the literature for this specific brain trauma, such as
“minor head injury, mild head injury, traumatic head syndrome, mild concussion
syndrome, mild head injury” and others (Diller, 1994; Gerstenbrach & Stepan, 2001).
Most studies adopted the term “Mild Traumatic Brain Injury” and this term will be used
here.

According to the Mild Traumatic Brain Injury Committee (American Congress of
Rehabilitation Medicine, 1993) a patient can be diagnosed with Mild Traumatic Brain
Injury (MTBI) if she/he exhibits at least one of the following symptom as a result of
disturbance of the brain tissue:

a. Any period of loss of consciousness;
b. Any loss of memory for events immediately before or after the accident;
c. Any alterations in mental state at the time of the accident, such as feeling
dazed, disoriented, or confused;
d. Focal neurological deficits that may or may not be transient.
e. Patients have to obtain score between 13 and 15 on Glasgow Coma Scale,
   where the maximum score is 15.

The Mild Traumatic Brain Injury Committee differentiated three groups of
symptoms that patients with MTBI may experience. The symptoms are called by some
authors as “post-concussive symptoms” (Hanna-Plady, Berry, Bennett, Phillips &
Gouvier, 2001; Nicholson, 2000; Ruff & Jurrica, 1999) and they are associated with a
diagnosis of “post-concussive syndrome” (Miller & Mittenberg, 1998; American
Psychological Association, 2000). The post-concussive symptoms discussed by most
investigators are similar to those listed by the Mild Traumatic Injury Committee (American Congress of Rehabilitation Medicine, 1993).

They are:

a. **Physical symptoms** (e.g. nausea, vomiting, dizziness, headache, blurred vision, sleep disturbance, fatigue, lethargy, or other sensory loss) that cannot be accounted for by peripheral injury or other causes (American Congress of Rehabilitation Medicine, 1993). Many investigators mentioned pain as one of the most frequent complaint. Nicholson (2000) noted that the incidence of headache, neck/shoulder, back or other pain in cases of MTBI was 89%, 51%, 45% and 20%, respectively. Furthermore, he suggested that in many cases headache has a negative effect on cognitive function, specifically on attention, memory, executive functioning and speed of processing. However, he added that it is still unknown to what extend cognitive difficulties are associated with pain, brain trauma, medications side effects or emotional problems.

b. **Cognitive deficits** (e.g. involving attention, concentration, perception, memory, speech/language, or executive functions) that cannot be completely accounted for by emotional state or other causes (American Congress of Rehabilitation Medicine, 1993).

The most frequent cognitive impairments mentioned by researchers were general slowing in psychomotor abilities, and delays in information processing (Hoofien, Giloba, Vakil & Donovick, 2001).

Further common symptoms are memory and attention dysfunctions (Arcinieagas et al., 1999). Patients have difficulties with learning new information for later recall, such as names, appointment times, phone numbers, etc. They have difficulties in focusing and sustaining attention, particularly in the presence of multiple and/or competing stimuli.
These impairments are often manifested as “difficulty following conversations, reading, watching a television program, or sustaining a train of thought” (Arciniegas et al., 1999). The author argues that the attention dysfunction is caused by failure in sensory gating, which leads to inability to filter irrelevant environmental information and sustain attention on relevant information. These problems may be associated with injury to the frontal and/or temporal lobes, and the hippocampus that play a significant role in generating selective and sustained attention.

Some authors mention “anosagnosia” as one of the cognitive impairments related to TBI (Gualtieri & Johnson, 1999; Prigatano, 1987). These authors describe this phenomenon as a denial of neurological deficits that had been recognized by other people. Prigatano (1987) suggests that this denial is “motivated by the need to keep out of awareness the harsh reality of cognitive, perceptual and motor deficits.”

c. Behavioral change(s) and/or alterations of emotional responsivity (e.g. irritability, quickness to anger, disinhibition or emotional liability) that cannot be accounted for by a psychological reaction to physical or emotional stress or other causes (American Congress of Rehabilitation Medicine, 1993).

Many studies estimated that psychological problems are counted for about 60% of all dysfunctions caused by TBI (Gualtieri & Johnson, 1999; Hoofien et al., 2001; Mooney & Speed, 2001). Affective disorders are the most common psychiatric complication occurring within this population. The research documented that depression is one of the most frequent complaint among affective disorder and they estimated its prevalence between 30% and 60% of the whole TBI population (Glenn, et al., 1998). Most patients
participating in studies reported symptoms such as: fatigue, frustration, poor concentration, worthlessness, and loss of interest in work.

The literature is not clear regarding the relationship between severity of TBI and prevalence of depressive symptoms. Some studies show correlation between injury severity and depressive symptoms occurrence (Satz et al., 1998) and others point out that there is no positive correlation between these two variables (Prigatano, 1987). Prigatano (1997) observed that some MTBI patients develop these symptoms long after the injury. They misjudge severity of their impairments since deficits in this specific population are mild, and they attempt to return to their previous functioning. If life demands exceed their post-injury abilities they become frustrated and depressed. The author suggested that depression might be more typical for MTBI because these patients are more aware of their deficits.

There are two concepts explaining the causation of TBI related depressive symptoms. The first one referrers to a direct cause and relates depressive symptoms to functional alterations in frontal lobe following brain injury, which may lead to a failure in the control and regulation of emotional processes (Ownsworth & Oei, 1998). Patients with this type of injury may display significant symptoms of “anergia, anhedonia, and lack of initiative” (Gualtieri & Johnson, 1999, p.109). They have difficulties in developing a plan of action and following it through. In these cases, it is advised to use stimulants, such as a dopamine agonist or amantadine as a choice of medical treatment. The second concept refers to indirect cause of depression and explains depressive symptoms as psychological response to disability, pain and loss of status (Gualtieri & Johnson, 1999). There are many TBI patients who recognize their cognitive and language
limitations several weeks or months after the injury, and they develop depressive symptoms when they realize that they are unable to cope with the environmental demands placed upon them (Ownsworth & Oei, 1998). It is advised to administer effective antidepressants, particularly SSRI's, as a first choice of medical treatment (Gualtieri & Johnson, 1999).

The second common emotional complaint following TBI is anxiety (Mooney & Speed, 2001; Prigatano, 1997). Many TBI patients develop anxiety after they realize that their cognitive and social functioning is limited. They have to face frequent failure and disappointments. Consequently, they withdraw from social interactions and generally become more suspicious of others.

Other psychological post-concussive symptoms and/or psychological disorders following TBI mentioned by researchers are post-traumatic stress disorder, paranoid ideation, hostility, impulsivity, obsessive-compulsive symptoms, borderline personality disorder, avoidant personality disorder, and paranoid personality disorder (Gualtieri & Johnson, 1999; Hibbard, et al., 2000; Hoofien et al., 2001; Prigatano, 1987).

Psychological difficulties related to TBI may often lead to poor social adjustment, withdrawal from social interactions, long lasting loneliness, decreased participation in leisure activities, family distress, and inability to return to work or keep a stable job (Lezal & O’Brien, 1988; Prigatano, 1987). Furthermore, these symptoms tend to increase in stressful situation, and particularly in situations involving cognitively demanding tasks. For example, study conducted by Hanna-Plady and others (2001) revealed that TBI subjects displayed greater increase in reported post-concussive symptoms after exposure to stressful condition in comparison to uninjured individuals. The symptomatic TBI
subjects also demonstrated increase in reported post-concussive symptoms and decrease in speed of information processing after exposure to high stress condition in comparison to their performance after engaging in relaxation.

Many researchers noted that these complaints persist longer than expected. For example, studies conducted 6 months after the injury (Satz, et al., 1998), 1 year after the injury (Kersel, Marsh, Havill & Sleigh, 2001; Bowen, Chamberlain, Tennant, Neumann & Conner, 1999; Perino, Rago, Cicolin, Torta & Monaco, 2001), 5 years after the injury (Lezak & O’Brien, 1988), 10 and 20 years after the injury (Hoofien et al., 2001) revealed that emotional, behavioral, and social difficulties following TBI were still present even after the passage of many years. One of the authors, a former TBI patient noted that: “the improvement in functions may occur over decades” (Hill, 1999, p.842).

3.3 Treatment Options for Mild Traumatic Brain Injury

a. Treatment of Cognitive and Language Deficits

The literature discusses cognitive and language rehabilitation as integral elements of the treatment (Coelho & DeRuyter, 1996). Cognitive retraining may include such processes as attention, memory, reasoning, problem solving and executive functioning. Palmese and Raskin (2000) discussed efficacy of Attention Process Training-II in the rehabilitation of attention in MTBI individuals. This program includes training in focusing and sustaining attention on tasks (e.g. reciting a sequence of numbers in an ascending or descending order, doing math problems, reading and extracting main ideas out of paragraph), keeping selective attention (e.g. external distractor such as tape with traffic or cafeteria noise may be added while a client is working on a task) and alternating
attention form one task to another. The research revealed that based on the pre-and post-training cognitive tests results, the APT-II program improved attention and performance speed in individuals participating in the study. The study conducted by Palmese & Raskin (2000) and several others (Coelho & DeRuyter, 1996; Parente, Kolakowski-Hayner, Krug & Wilk, 1999) underlined an importance of repetition, hierarchical introduction of more difficult tasks after mastering easier ones, and exercising skills that may be used in real world (e.g. adding bills) in rehabilitation of attention. Cicerone (2002) argued that teaching TBI patients compensatory techniques helps them to use their remaining attention recourses more effectively. The compensatory techniques include: anticipation tasks demands, self-pacing strategies, interrupting tasks, asking for clarification, repeating information, positive self-statements for management emotional reactions. Mentioned compensatory techniques intended to help clients to manage more effectively time pressure and the rate of information when staying on tasks. The results of study conducted by Cicerone (2002) showed that the treatment group exhibited significantly greater change on standard measures of attention, with improvement on 58.3% of measures, in comparison to the control group with clinically meaningful change on 12.5% of measures.

A second element of cognitive rehabilitation is memory retraining. Memory retraining strategies involve information repetition, organization information in a logical way, making verbal or visual association between items, and working in a systematic way (Deelman, Berg & Koning-Haanstra, 1990). Keeping a daily schedule might be also helpful as a compensatory technique for memory problems in order to mange daily activities. For example, the single case study conducted by Finset and Andersen (1990)
revealed that the subject of this study displayed significant improvement in memory functioning and goal-directed behavior (e.g. getting up in the morning, participation in group activities, initiating activities) in pre- and post-treatment period. Furthermore, Ownsworth and McFarkand (1999) noted that a Diary and Self-Instructional Training (DSIT) approach with using self-awareness and self-regulation skills is more effective in comparison to a Diary Only (DO) approach. The DSIT subject made diary entries more consistently than the DO subjects. They also reported a lower level of memory difficulties after the treatment phase in comparison to DO participants.

The last component of cognitive rehabilitation, as suggested in the literature, is executive functioning training. Executive functioning retraining includes planning and analyzing tasks demands, selecting an action strategy, monitoring the course of an activity, and evaluating the outcome of the activity (Coelho & DeRuyter, 1996). This training may also involve compensatory techniques in planning and making decisions such as a “part-whole” strategy (Parente et al., 1999). This strategy teaches a client to break the task down into components and deal with one component at a time.

Language rehabilitation includes exercising skills involved in communication of spoken (i.e. articulation, fluency, phonation, and resonance), written (e.g. reading and writing), or nonverbal messages (i.e. gestures and facial expression), and reception of auditory, printed or nonverbal messages (Coelho & DeRuyter, 1996).

Cognitive and language rehabilitation includes individual therapy with a speech-language pathologist and a cognitive therapist who address both cognitive and language deficits. An additional form of therapy is a group psychotherapy, which is recommended
to exercise patients’ cognitive and language skills, as well as developing social skills and skills in managing one’s emotions and behaviors (Coelho & DeRuyter, 1996).

b. Treatment for Emotional, Behavioral and Social Difficulties

There are some studies suggesting that an education-oriented single session treatment for MTBI is sufficient and as effective as more intensive treatments (Paniak, Toller-Lobe, Durand & Nagy, 1998; Paniak, Toller-Lobe, Shawn, Melnyk & Nagy, 2000). For example, Paniak (1998) compared two treatment groups the Single Session (SS) group and the Treatment-as-needed (TAN) group. Participants in the TAN group extensive treatment that included psychoeducational session, neuropsychological and personality assessments, consultation with a physical therapist, and access to the outpatient brain injury treatment program if needed. Subject in SS group participated in a single psychoeducational session providing information about common complains following TBI and suggestions how to cope with these problems. The results of this study showed that subjects of both SS and TAN groups improved equally and did not differ on any symptom-related, functional or vocational variables. However, the author underlined that most participants of both groups did not have persistent complains. He suggested further that a more effective treatment model would involve the single session intervention soon after the injury, possibly followed immediately by more extensive treatment for those who needed it.

Another treatment approach addressing emotional and behavioral difficulties related to TBI is supportive form of psychoanalytic psychotherapy, a therapy developed and described by Prigatano (1994). The author stated that “the primary goal of [this kind of] psychotherapy is to help the patient deal with unconscious conflicts in such a manner
as to free up psychic energy and thereby make greater commitments to life. The emphasis is often on helping the patient to become more productive in his or her work and more competent in interpersonal and love relationships” (Prigatano, 1994, p.182). The Freudian symbols of work and love are very important in this therapy. Further, the Jungian concept of “individuation” is incorporated to this approach. The therapy has to be adjusted to client’s individual problems and a specific injury location. For example, patients with frontal-lobe lesions often display impulsive, “childish” behavior. Therefore these patients need structure and the therapist may play the role of a “parent.” A therapeutic goal is to develop a new sense of individuality in response to changes after the injury. The author also suggests using drawings as symbolic expressions of patients’ emotions and desires.

Another therapeutic approach addressing TBI related psychological problems is narrative therapy, an approach discussed by Hogan (1999). The goal of this type of therapy is to encourage clients to name their own problems and create their life stories. The role of narrative therapists is to help clients to help them tell their stories in ways that “might lead to understanding, connection, acceptance, and liberation for themselves and other people around them or whose lives they have the potential to touch” (Hogan, 1999, p.24). The author presented a case of a man who suffered TBI. The patient was encouraged to describe his experience following brain injury. Next his words were read back to him. It allowed him get in touch with his own feelings. It also gave him a chance to explain the meaning of his words to be better understood by people and to understand himself better. This technique motivated him to talk about his feelings more openly and communicate in more understandable way, which improved his social functioning.
Other authors discuss results of studies on therapy approaches dealing with particular behavioral problems related to TBI. Specific behaviors exhibited with brain injury, particularly with frontal-lobe injuries may include: disinhibition, impulsivity, lack of initiation, inability to make judgments and monitor one’s own behavior. One of the most common disturbing behaviors occurring after brain injury is aggression (Benson et al., 2000; Duchame, 1999). Benson et al. (2000) discussed behavior management program in a community-based setting as an example of treatment addressing behavioral problems following TBI. The goal of this program was to reduce unwanted aggressive behaviors and develop alternative appropriate ways of responding to stimuli. The examples of techniques intended to reduce aggressive behavior were: distraction, redirection, “guided compliance,” which consists of verbal, gestural and physical cuing and “behavioral momentum,” which is intended to increase tolerance to difficult situations by building “momentum” through reinforcing compliance to easy instructions and implementing gradually more difficult instructions. Positive reinforcement was used to enhance appropriate behaviors. Further, clients were taught communication skills and problem solving strategies to replace negative behavior with new alternative and more appropriate ways of behaving. Later, patients were encouraged to practice new skills in the community settings (e.g. market, restaurant etc.) with and without the company of the therapist.

Ducharme (1999) discussed a conceptual model of treatment for the behavioral problems following TBI that consists of two categories of approaches “remedial” and “moderating.” The remedial approach is used in post-acute faze of recovery after brain injury, and moderating approach is used mostly in the acute faze of recovery. The
remedial approach will be discussed more closely, since the main focus of this study is treatment of symptoms remaining long after the injury. The remedial treatment approach involves teaching skills that allow TBI patients to compensate for deviant behaviors and manage difficult everyday situations more effectively. This treatment consists of two strategies. The first one is termed “functional equivalence,” which is designed to teach the client competences such as communication, problem-solving, and social skills. The second is “errorless remediation” which involves teaching the client to successfully tolerate increasingly difficult circumstances by providing simple directions, cues and support, and gradually increasing demands and withdrawing cues.

Emotional and behavioral difficulties related to TBI may lead to social maladjustment. Some studies underline the importance of social skills training as an important element of social functioning improvement. One method of improving social skills is through the use of a “problem solving” approach. This approach is intended to teach patients social skills by following certain steps such as a) discrimination of social stimuli (decoding), b) identification of alternative social behaviors and selection the most appropriate ones for that particular situation (decision making), c) behavior performance (performance), d) evaluation of the effectiveness of the social behavior once it has been performed (evaluation) (O’Reilly, Lancioni & O’Kane, 2000).

Social skills training may also include certain behaviors, such as initiating social contacts appropriately, responding appropriately to the comments of others, requesting and offering assistance when needed, responding appropriately to criticism, and negotiating or resolving differences appropriately (O’Reilly, et al., 2000).
Godfrey and Shum (2000) argued that remediation of social skills deficits directly through their training may have limited success. The authors based their opinion on the assumption that "social competence requires the ability to apply social skills flexibly according to rules of social interaction" (Godfrey & Shum, 2000, p.433). They concluded that based on the literature, TBI patients are not able to flexibly adapt and change behavior, especially behavior requiring high-level cognitive processing, because of impairments of the executive system. Therefore, social skills training may have limited success. The authors suggested that treatment by modifying the social environment and providing social support might be more effective.

c. Vocational Rehabilitation

Returning to work and maintaining a job is a challenge for many TBI patients. Deficits resulting from the injury, such as memory loss, difficulties with attention, problem solving, communication, and organizational skills may limit successful work re-entry (Isaki & Turkstra, 2000). Most individuals with TBI require some assistance in the process of searching for job and maintaining it. Several vocational rehabilitation services are available for those patients, such as Vocational Assessment and Referral, Social Services, Vocational Counseling, Job Training, Placement Services, On-Site Support Training and others (Kolakowsky-Hayner & Kreutzer, 2001).

One of the most effective vocational rehabilitation programs discussed by authors is “Supportive Employment,” which is defined as “integrated jobs in community settings where persons with disabilities have opportunity to work alongside with people without disabilities and are provided with individualized support to facilitate long-term success” (Jenaro, Mank, Bottomley, Doose & Tuckerman, 2002, p.6). Support may include
accommodation in a workplace (e.g. mechanical or electrical device that compensates for an individual’s disability), federal regulations, paid supported employment personnel (e.g. job coach or employment specialist), and “natural support” from co-workers.

Research conducted by Jenaro et al. (2000) aimed to analyze the relationship between type of support and outcomes in supported employment. Researchers contacted supported employment programs and gathered necessary data by using a survey. Obtained data showed that more natural job orientation and support strategies corresponded with better economical, social and performance outcomes. Moreover, physical accommodations were related to lower worksite integration and lower overall adjustment. Finally, additional supervision was related to less overall work adjustment. The authors suggested that more natural support in a work setting and providing physical accommodations only if needed will facilitate the best outcomes in supported employment programs.

Vocational rehabilitation may also include social skill training, because, as some research suggested, poor interpersonal skills and emotional instability seem to interfere with job satisfaction and its maintenance (O’Reilly et al., 2000). A social skills training approach was discussed earlier.

Finally, persons with TBI are encouraged to involve in volunteer work, which can be an important step in rebuilding self-confidence, decreasing anxiety, and returning to work (Kolakowsky-Hayner, 2001).
3.4 Cognitive-Behavioral Treatment of Emotional and Behavioral Problems

Following Mild Traumatic Brain Injury

As discussed earlier, post-concussive symptoms may respond to psychological treatment. There are some research presenting cognitive-behavioral treatment for specific post-concussive symptoms, such as depression and anger. For example, Ownsworth and Oei (1998) reviewed existing studies searching for appropriate treatment for depressive symptoms related to TBI. The authors noted that cognitive-behavioral approaches were effective in cases found in the literature. Treatment goals were focused on reframing and challenging cognitive distortions so the client can shift form negative to positive self-evaluations. In cases when cognitive impairments may be unable the use of cognitive restructuring, it is advised to use direct behavioral techniques such as activity scheduling and social skills training until their cognitive functioning becomes adequate.

Demark and Gemeinhardt (2002) examined existing studies on cognitive-behavioral treatment for TBI related anger. The author, based on the reviewed literature, concluded that cognitive-behavioral treatment is an effective way of anger management for TBI clients. The first step of the model presented by Denmark is to educate clients with TBI about the process of anger, various responses (e.g. cognitive, physiological and emotional responses), and triggering factors such as hunger, fatigue, stress, pain, feelings of frustration, noise, and crowds. The educational component is followed by cognitive and behavioral techniques. Cognitive techniques may include keeping thought records, finding evidence for and against these thoughts and developing positive self-statements. Behavioral techniques may involve interpersonal skills training (e.g. appropriate communication, assertiveness, problem solving and conflict resolution skills), and
relaxation training with inclusion of progressive muscle relaxation, guided imaginary, autogenic training, biofeedback and meditation.

Medd and Tate (2000) conducted a study that aimed to evaluate efficacy of cognitive-behavioral treatment for anger management. Subjects in a treatment group participated in a treatment program which included psychoeducation (i.e. discussing a model of anger and its triggers), increasing the participants' awareness of their anger, implementing relaxation, self-talk, cognitive challenging, assertiveness training, distraction and timeout methods. The results of this study indicated significant decrease in anger on the State-Trait Anger Expression Inventory for participants in a treatment group in comparison to those in a waiting list group.

A number of more extensive research regarding the cluster of post-concussive symptoms, cognitive-behavioral model of post-concussion syndrome maintenance, and development of cognitive-behavioral prevention program and a treatment protocol were conducted by Mittenberg and his colleagues over several years. The review of his most significant studies was presented in the article: Brief cognitive behavioral interventions in mild Traumatic brain injury (Miller & Mittenberg, 1998). One of the discussed studies (Mittenberg, DiGiulio, Perrin & Bass, 1992) concluded that although the initial cause of post-concussive syndrome may be physiologically related to a brain injury, psychological factors appear to play a role in its maintenance. According to this research, TBI patients tend to focus selectively on normally occurring affective, cognitive and somatic symptoms as a response to stressful situations and to attribute them to their head injury. Furthermore, the patients underestimate the occurrence of these symptoms before the trauma. The attributional bias and selective attention can lead to depression and anxiety,
which builds self-reinforcing cycle. It was concluded that attributional and attentional biases might lead to the syndrome maintenance. The author suggested that if the cognitive distortions contribute to the maintenance of PCS, the cognitive-behavioral intervention might reduce or prevent the effects of the syndrome.

Mittenberg, Tremont, Zielinski, Fiscera and Rayls (1996) concluded that the cognitive-behavioral treatment model is effective in preventing post-concussion symptoms. Patients participating in this study received the printed manual *Recovery from Mild Head Injury: A guide for Patients* (Mittenberg, Zielinski, & Fishera, 1993) and were informed about typical symptoms following brain injury, the cognitive-behavioral model of symptoms maintenance, and were taught techniques for symptom reduction. All participants were contacted at 6 months post-injury. The results indicated significant reduction of symptoms such as headaches, fatigue, memory problems, concentration difficulties, anxiety, depression, dizziness, and visual disturbances in their frequency, duration and severity in comparison to the control group.

Ferguson and Mittenberg (1995) developed a treatment protocol for TBI patients experiencing long lasting post-concussive symptoms in. The treatment was based on the principles used in the previous studies conducted by Mittenberg and his colleagues. The treatment consisted of 12 sessions. Each session began by reviewing the client’s post-concussive symptoms, their frequency, duration and intensity. The therapist discussed the checklist’s results to possibly disconfirm the belief that experienced difficulties were caused directly by the brain damage. The therapist also educated clients about the effects of MTBI and the typical process of recovery. Further, cognitive-behavioral treatment techniques were implemented. Behavioral techniques included: activity scheduling, and
tracking mastery and pleasurable experiences. Cognitive restructuring focuses on negative automatic thoughts about the symptoms, selective attention to symptoms, and misattribution stress- and anxiety-related symptoms to the brain injury. Anxiety management component includes teaching clients to cope more effectively with such symptoms as anger, irritability, emotional overarousal, and difficulties concentrating. Clients are given a copy of *Recovery from Mild Head Injury: A Treatment Manual for Patients* (Mittenberg et al., 1993).

A study conducted by Ferguson and Mittenberg in 1996 (cited in Miller & Mittenber, 1998) revealed that a treatment for post-concussive symptoms based on previously mentioned 12-week structured treatment protocol was effective. The post-concussive symptoms were significantly reduced in their quantity and severity over the 12-week trial. In addition, symptoms that persisted longer were reported by patients as more manageable.

According to the literature, model of treatment for post-concussive symptoms related to TBI developed by Ferguson and Mittenberg (1995) is one of the most structured and empirically supported treatments for these specific symptoms experienced by this particular population. It is a brief cognitive-behavioral therapy consisting of 12 sessions. The treatment protocol includes psycho-educational components and description of cognitive-behavioral techniques addressing symptoms specific for TBI clients. However, it is important to note that model developed by Ferguson and Mittenberg (1995) focuses mainly on emotional problems related to brain injury. As we know from the literature, TBI clients also experience difficulties in cognitive, language, social and vocational areas. It has been advised that post-injury treatment should involve
a “multidisciplinary team” (Oddy, et al., 1996). This treatment team would have a group of professionals, such as medical doctors, neurologists, speech-language pathologists, psychologists, and vocational counselors who should work toward a common goal, which is functional improvement of TBI patients. The best practice treating psychological problems related to TBI should follow guidelines proposed by Ferguson and Mittenberg (1995), and it should cooperate with other professionals providing treatment for cognitive, language, and vocational difficulties.
Chapter 4

Normative Practice/Outcomes

General Information

Treatment was conducted at a private practice and consisted of 25 individual sessions. Each session lasted 1 hour, and sessions were conducted on a weekly basis. The office telephone number was available to the client in a case of psychiatric emergency.

Ms. Smith was treated at the same time by her speech and cognitive therapists. All professionals collaborated with each other by sharing information concerning the client.

Ms. Smith visited a family doctor frequently, and this doctor was responsible for supervising her physical health and medication use. The client has been taking 150 mg of Wellbutrin twice a day to decrease depressive symptoms that developed after the car accident.

4.1 Outcome Measures

This therapy was focused on emotional problems related to the brain injury. The client has reported experiencing some symptoms of depression and anxiety. Therefore, measures assessing both disorders, specifically the Beck Depression Inventory-I (Beck, 1978) and the Sheehan Anxiety Scale (Sheehan, 1983), were chosen for this study.

The Beck Depression Inventory-I (Beck, 1978) is a self-report measure designed to assess the severity of depression in adolescents and adults. The BDI consists of 21 items rated on 4-point scale ranging from 0 to 3 in terms of symptom severity. Clients are asked to check the statement which best describes the way they have been feeling for the past week including the day of assessment. The total score is obtained by adding up
scores for each of 21 items. The results are interpreted by comparing the total score to the table “Levels of Depression,” which is presented below:

1-10  These ups and downs are considered normal
11-16  Mild mood disturbance
17-20  Borderline clinical depression
21-30  Moderate depression
31-40  Severe depression
Over 40  Extreme depression

Each item on the BDI-I measures specific symptoms of depression, as outlined below:

1.  Sadness
2.  Pessimism
3.  Sense of Failure
4.  Dissatisfaction
5.  Guilt
6.  Expectation of Punishment
7.  Dislike of Self
8.  Self Accusation
9.  Suicidal Ideation
10.  Episodes of Crying
11.  Irritability
12.  Social Withdrawal
13.  Indecisiveness
14.  Change in Body Image
15.  Retardation
16.  Insomnia
17.  Fatigability
18.  Loss of Appetite
19.  Loss of Weight
20.  Somatic Preoccupation
21.  Low Level of Energy

Items 1 through 13 comprise cognitive and somatic symptom, and items 14 through 21 comprise only somatic symptoms of depression.
The BDI-I (Beck, 1978) has high content validity. Its items are consistent with the symptoms of depression listed by DSM-IV. The BDI-I (Beck, 1978) is correlated moderately with other scales measuring depression, such as Hamilton Rating Scale for Depression (r=.73), Zug Self Rating Scale (r=.76), and the MMPI-Depression Scale (r=.76) (Stinton, 2000).

Ms. Smith obtained a score of 28 on the Beck Depression Inventory-I (Beck, 1978) during the initial assessment, which places her on the high end of “moderate depression” interval. The client’s rating is particularly high with an actual score of 3 on item 13 “I can’t make decisions any more.”

The next highly rated most important complaints were sleep disturbances and fatigability. Ms. Smith obtained high scores on items: #15 “I have to push myself to do anything,” #17 “I am too tired to do anything,” and #16 “I wake up 1-2 hours earlier than usually and find it hard to get back to sleep.”

Ms. Smith reported other significant symptoms of depression indicating “highly” and/or “moderately” on items: #1 “I am sad all the time and I can not snap out of it,” #10 “I cry all the time now,” #11 “I get annoyed or irritated more easily than I used to.” The same symptoms were reported during the initial interview with the client.

The remaining items with “moderate” and “high” are the items related to self-perception. They are: #7 “I am disgusted with myself,” #8 “I am critical of myself for my weaknesses or mistakes,” and #5 “I feel guilty most of the time.”

Ms. Smith rated item #9 as 0 saying: “I don’t have any thoughts of killing myself,” which she repeated verbally during the interview.
Ms. Smith has also obtained a very low score on item #6 stating: “I have not lost interest in other people.” Data gathered during the initial assessment indicated that the client has isolated herself from social interaction since the car accident. However, the results from BDI show that she is still interested in people. This information is very promising and it allows developing a treatment plan with strong emphasis on social support.

The Sheehan Anxiety Scale (Sheehan, 1983) was used by the clinician as an informal rating of anxiety to develop treatment goals. The scale was adapted from a book by D. V. Sheehan called “The Anxiety Disease,” 1983. No specific information could be found in the review of the literature regarding the norming standardization for this scale. Many of the items are similar to other standardized anxiety scales, such as Beck Anxiety Inventory (Beck & Steer, 1993).

The test consists of 35 items, which the respondent is asked to rate from 0 “not at all” through 4 “extremely.” These include items such as #6 “Chest pain or pressure” for physical signs of anxiety to #30 “Tension and inability to relax,” which refers to a mental state of anxiety. The total score obtained by the respondent is compared to the scoring table presented below

<table>
<thead>
<tr>
<th>Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>6-30</td>
<td>mild endogenous anxiety</td>
</tr>
<tr>
<td>31-50</td>
<td>moderate endogenous anxiety</td>
</tr>
<tr>
<td>51-80</td>
<td>marked endogenous anxiety</td>
</tr>
<tr>
<td>81-134</td>
<td>severe endogenous anxiety</td>
</tr>
</tbody>
</table>
Ms. Smith obtained a total score of 64 at the initial interview, which placed her in the “marked endogenous anxiety” interval. She scored 3-markedly or 4-extremely on 17 items, such as:

#12 “Headaches or pains in neck or head,”
#13 “Feeling tired, weak, and exhausted easily,”
#14 “Spells of increased sensitivity to sound, light or touch,”
#27 “Difficulties in falling asleep,” which describe her somatic symptoms of anxiety, to
#23 “Emotions and moods going up and down a lot in response to change around,”
#30 “Tension and inability to relax,”
#31 “Anxiety, nervousness, restlessness,” and
#34 “Anxiety episodes that build up as you anticipate doing something and that are more intense that most people experience in such situations,” which give a picture of emotional signs of anxiety.

The results of both measures: the Beck Depression Inventory-I (Beck, 1978) and the Sheehan Anxiety Scale (Sheehan, 1983) indicate that she had levels of depression and anxiety that were at least moderate when she first entered treatment. Therefore, it was necessary to develop an appropriate treatment plan addressing both areas of complaint. The measures will also be used to assess the client’s progress during treatment.

4.2 Treatment Plan

Theoretical Background

The treatment conducted by a current therapist was based on Cognitive-Behavioral Treatment principles. Cognitive theory links psychopathological symptoms with
dysfunctional automatic thoughts, which are activated by stressful events. An example of Ms. Smith’s automatic thoughts are that she thinks she should be always able to lead intelligent conversations and give quick answers whenever asked by somebody, as she claimed she was able to prior to the car accident. She thinks she should be able to focus on multiply tasks and work independently in an office setting. She thinks she is incompetent since her functioning is lower in relation to her pre-accident status. These thoughts were activated in situations when she had difficulties with retrieving words, focusing on a topic while talking to people, and with completing her work assignments in the office. These negative thoughts contributed to her already low self-esteem and were related to feelings of sadness.

The Behavioral model defines problems in concrete, behavioral terms and it searches for relationships between behavior and circumstances leading to and following this behavior. Ms. Smith exhibited dysfunctional behaviors in response to triggering situations. For example, she reported that some people were very impatient when she could not focus on the topic and she was not able to answer questions quickly. These experiences were source of frustration and anxiety. Consequently, she isolated herself from social interaction to avoid these unpleasant feelings.

Both models helped to explain client’s problems and to develop an appropriate treatment plan. Each treatment plan consists of treatment goals and therapeutic techniques used to realize these goals.

Treatment Goals

1. Reduce level of depression, which has slowed down client’s rehabilitation after the car accident. This goal was detailed in several sub-goals.
a. Increase social interactions, particularly interactions with family members.

b. Reduce client’s negative self-evaluations.

c. Increase in the client’s positive (realistic) self-statements.

d. Improve client’s coping skills when dealing with strong emotions, such as anger, frustration and sadness.

2. Reduce level of performance related anxiety in social and vocational areas. This goal was measured by the following sub-goals:

a. Improve client’s coping skills while dealing with personal limitations.

b. Reduce client’s distractibility and impulsiveness.

c. Improve client’s organizational skills

d. Improve client’s social skills.

3. Assist the client in finding and sustaining a job.

Techniques

1. Scheduling Daily Activities

The client was asked to schedule daily activities in advance. This is a behavioral technique, which is intended to activate a client and distract her from her preoccupation with negative thoughts, and consequently to decrease her depressive symptoms. It also meant to organize her thoughts and daily activities, since the client’s concentration and organization skill have been diminished after the car accident. It was necessary to teach the client to plan a small number of every day activities day and prioritize the most important ones, because dealing with multiple tasks easily overwhelmed her. The necessity of being flexible with daily plans was underlined and an accepting attitude was displayed to help the client accept her own imperfection in case of eventual failures.
2. **Mastery Monitoring**

The client was asked to make a list of accomplishments for each day. This technique was intended to raise client’s self-esteem, help her focus on positive aspects, and hopefully improve her mood.

3. **Cognitive Restructuring**

   a. **Socializing the client to cognitive therapy**

      The concept of “automatic thoughts” was introduced to the client. The relationships among thoughts, feelings and behavior were discussed with her. Finally, the importance of eliciting and changing “automatic thoughts” in order to change unpleasant feelings was explained to the client. Ms. Smith received a worksheet adopted from a workbook by McKay, Davis & Fanning (1997), which gives examples of automatic thoughts, their definitions, and balancing statements. The goal of this technique was to raise client’s understanding of the cognitive approach to anxiety and depression and their treatment.

   b. **Catching the “Internal Critic”**

      Ms. Smith’s automatic, negative self-evaluations were brought to her attention during each session. The client was encouraged to monitor the internal critique between the sessions. This technique was supposed to raise client’s awareness of her “negative” automatic thinking.

   c. **Daily Record of Dysfunctional Thoughts**

      Ms. Smith received a sheet with an example of an “Automatic Thought Journal.” The journal consisted of several sections, such as “situation,” “emotion,” “automatic thought,” “balancing statement.” The journal was adapted from a workbook by McKay et
al. (1997). The client was asked to record a situation that caused a particularly distressful feeling, the feeling, and the thought that appeared in her mind during the situation. Next, she was asked to find a “balancing statement” to her automatic thought. The goals of these exercises were to decrease automaticity of her thinking, increase objectivity of her opinions, and improve self-evaluations.

4. **Reattribution**

Recent negative events and possible logical causes of these events were discussed with the client. The aim of this technique was to shift client’s attention from herself as the sole source of her problems and distribute responsibilities for negative consequences to other sources.

4. **Identifying Strong Emotions**

Ms. Smith was asked to recognize and name particularly distressful emotions. Notes taken during the week were reviewed in the session. Possible ways of coping with these emotions and activities providing relief from the symptoms were discussed with the client. The aim of this exercise was to teach the client to analyze feelings in a rational manner and to normalize her reaction to some of them. Ms. Smith was a very rational individual until the car accident, and this exercise was suppose to help the client to accept an idea that feelings are an integral part of human nature. Finally, this technique was intended to improve client’s ways of coping with the strong emotions.

5. **Identifying Limitations and Mastering Coping Strategies**

Ms. Smith was asked to note her limitations and the way she managed them. Next, the notes were discussed during sessions. The most frequently mentioned limitations were difficulties with remembering facts, emotionality, distractibility, and
fatigue. The possible coping strategies were discussed with the client. After that, the client was asked to implement these strategies in life. This exercise anticipated helping the client to accept her limitations and master compensatory techniques.

6. **Identifying Internal and External Recourses**

Ms. Smith was asked to note her internal and external recourses that could help her to cope with situational and emotional difficulties. The goal of this technique was to increase the client's awareness of her personal strengths and existence of social support.

7. **“Focus on a Task” Training**

Ms. Smith was asked to read a chapter from a sociology textbook by Henslin (2000) and prepare a lecture that she had to present during the session. The aim of this assignment was to exercise the client’s memory, ability to focus on the task, organize read material and present it to the audience in a concise manner.

A part of Kauffman-Brief Intelligence Test, K-BIT (Kaufman & Kaufman, 1990), was administered to Ms. Smith. The client was asked additional questions about the recent events while working on the test. Then, she was asked the next question from the test. This exercise was intended to help the client to stay focused on multiple tasks with minimal digressions. It also was intended to exercise the client’s ability to deal with frustration while answering difficult questions and stopping negative self-evaluations if she answered questions incorrectly.

8. **Social Skills Training**

   a. **Assertiveness**

   First, Ms. Smith defined people she would like to be more assertive with and specific problems she experienced with them. Second, she was encouraged to express her
feelings rather than opinions and to use "I..." statement while expressing feelings. The "I..." statement was modeled by a therapist and practiced with a client. Next, Ms. Smith was encouraged to express her request in a brief and specific form. For example, "I feel hurt when you do not answer my phone calls. I would like you to call me more often."

Some traditional assumptions, such as "It is selfish to put my needs before other's needs," "I should be always flexible and adjust to others," "If I can not convince others that my feelings are reasonable, then the feelings must be wrong." were discussed with the client. The balancing statements for each assumption were developed with her. The goal of this technique was to improve the client's assertiveness skills that are necessary in social and work areas.

b. **Anger Control**

Ms. Smith was encouraged to use relaxation techniques, particularly deep breathing and to keep conversations brief while facing situations that make her angry. Some triggering anger thoughts were discussed with the client. The example of those thoughts are: "People should always respect me," "I want something, therefore I should have it," "If my son doesn't return my phone call right away, it means he doesn't care about me." The alternative statements were developed with the client. The goal of these exercises was to practice effective anger management and to improve social skills.

c. **Communication**

Ms. Smith was encouraged to not hesitate ask for help if needs it. She was taught some communication techniques, such as asking for clarification if somebody's statement is not clear to her and reframing somebody's statement to make sure that she understands it correctly. Further, she was encouraged to take her time and use relaxation techniques
while processing difficult information, particularly in a noisy environment. These techniques were modeled and practiced with the client during sessions. Their aim was to improve her social skills.

9. Assisting the Client in Finding a Job

Ms. Smith was accompanied by a therapist in the office of the New Jersey Vocational Rehabilitation Agency to file an application for services. She was scheduled to receive a full evaluation to determine suitable career options. Furthermore, time during sessions was spent in developing a resume, practicing an interview, and discussing the client’s strengths and limitations in a vocational area. The client was encouraged to apply for positions and to use cognitive techniques and behavioral techniques described above in her job search, and once employed to use the same techniques to maintain her job.

4.3 Treatment Outcomes

Ms. Smith was re-evaluated after 6 months of treatment. Both outcome measures, Beck Depression Inventory-I (Beck, 1978) I and Sheehan Anxiety Scale (Sheehan, 1983) were administered to the client. A difference between the results obtained on both measures before treatment and at six-month follow up suggested a clinically significant reduction in depression and anxiety.

Ms. Smith obtained a score of 16 on the BDI-I (Beck, 1978) at 6-month follow-up, which placed her on a high end of the “mild mood disturbance” interval. This score, in comparison to the score of 28 obtained during the initial assessment, indicated significant improvement in depressive symptoms. Specifically, Ms. Smith obtained “low”
scores, with actual scores of 1 or 0 on items that were previously rated “highly” with scores 2 or 3. These items are:

# 5 with answer: “I don’t feel particularly guilty”

# 7 with answer: “I am disappointed in myself”

# 8 with answer: “I am critical of myself for my weaknesses and mistakes”

# 10 with answer: “I cry more now that I used to”

# 11 with answer: “I get annoyed or irritated more easily that I used to”

# 13 with answer: “I put off making decisions more than I used to.”

Additionally, the client reported that although she cries more and is more sensitive in comparison to the pre-accident functioning, she cries less and she is less sensitive in comparison to her pre-treatment functioning. She also reported that she criticizes herself less frequently and is able to accept her mistakes or weaknesses more easily. Finally, she admitted that “making decisions” is still difficult but not impossible.

Items # 6 “I don’t feel I am being punished,” # 9 “I don’t have any thoughts of killing myself,” and #12 “I have not lost interest in other people” remained low with scores of 0. Additionally, according to the client’s report, her interest in other people increased in comparison to her pre-treatment state. She also admitted being interested in the possibility of romantic relationship, which had not previously been mentioned.

Items indicating difficulties with sleeping and fatigability remained high. These items re:

# 15 with answer: “I have to push myself very hard to do anything”

# 16 with answer: “I don’t sleep as well as I used to”

# 17 with answer: “I get tired from doing almost anything.”
A possible physiological origin of these symptoms may explain their minimal/ or lack of response to psychotherapy.

Ms. Smith obtained a score of 36 on Sheehan Anxiety Scale (Sheehan, 1983) at the six-month follow up. This score, in comparison to the score of 67 obtained during the initial assessment, indicated improvement in anxiety related symptoms. A score of 36 falls in the “Moderate Endogenous Anxiety” interval, whereas the score of 67 obtained during the initial evaluation was found to be “Marked Endogenous Anxiety.”

Most items were rated at the six-month follow-up with low or very low scores. Specifically, they were

- 15 items rated 0 “not at all,”
- 7 items rated 1 “a little bit”,
- 10 items rated 2 “moderately”,
- 1 item rated 3 “markedly”, and
- 2 items rated 4 “extremely.”

Most score have been lowered by one rating interval. Specifically, there were 9 scores lowered from 3 to 2 and there were 6 scores lowered from 1 to 0. Some scores have been lowered from 3 “markedly” and 4”extremely” to 1 ”a little bit” or 0 “not at all.” These scores were obtained on items:

- # 5 “Skipping or racing of the heart”
- # 9 “Hot flashes or cold chills”
- # 32 “Sudden unexpected panic spells that occur with or no provocation”
- # 16 “Feeling that surroundings are strange, unreal, foggy, or detached.”
Additionally, the client reported that even though she still has been sporadically experiencing symptoms of anxiety or panic spells, she is able to manage them much better using relaxation and self-talk techniques.

There were only 3 scores that remained at a high range (3 “markedly or 4 “extremely”) at the 6-month follow-up evaluation in relation to the pre-treatment scores. These scores were obtained on items such as:

- # 12 “Headaches or pains in neck or head”
- # 13 “Feeling tired or, weak, and exhausted”
- # 24 “Being independent on others.”

Ms. Smith was also asked to fill out the Client Satisfaction Questionnaire. The questionnaire consists of 10 items that a client rates from 1 “strongly agree” to 5 “strongly disagree.” The instrument is intended to measure the client’s degree of satisfaction with therapy. Specifically, it is intended to evaluate quality of therapeutic relationship (items 1 through 4), clarity of therapeutic goals (item 5), and perceived progress (items 6 through 10). Items rated by the client as:

1 “strongly agree” included

- #2 “My therapist treats me with respect and empathy”
- #4 “My confidentiality has been always maintained”
- #6 “This therapy helped me to deal more effectively with my problems”
- #8 “This therapy has helped me to feel less depressed”
- #10 “In overall sense, I am satisfied with this therapy”

2 “agree” included

- #1 “I feel that my therapist understands me”
4 “disagree” included

#7 “I feel that I haven’t made any progress in this therapy”

5 “strongly disagree” included

#3 “I don’t feel comfortable with my therapist”

#5 “I have not always been clear about the goals of therapy”

#9 “This therapy has not helped me to feel less anxious.”

Additional information about the client’s progress was obtained from clinical notes and observations. It was observed that the client looked more relaxed and happier (by smiling and laughing with much greater frequency) at the six-month follow up session. Ms. Smith reported crying less frequently, which was noted during several recent sessions. It was observed in session that the client is still emotionally sensitive but her emotional responses to upsetting events or discussions are less extreme. For example, it was noted that she was able to regain control and refocus faster while discussing an upsetting topic during the session in comparison to earlier session. Farther, it was observed that the client’s negative self-evaluations occurred less frequently during later sessions and the client’s focus on them can be shifted more easily. No significant changes in positive self-statements were noted.

Ms. Smith’s cognitive and language difficulties are still present. However, some improvements in this area can be noted. For example, it was observed that her speech and thoughts are less tangential. She still changes the subject of conversation frequently but she is able to refocus and return to the previous topic. She seems to be more tolerant of her cognitive limitations, and she uses compensatory techniques to improve her cognitive functioning. For example, she reported that she keeps a daily planner where she marks
important meetings, activities, and appointments. She is able to replace forgotten words more easily, which was noted during recent sessions. Finally, it was observed that her emotional responses to language and cognitive difficulties are less intense and shorter in duration since therapy was initiated.

Her social functioning has improved significantly. First, according to Ms. Smith, meetings with the family members improved in their frequency and quality. The client reported spending more time with her children and grandchildren. Ms. Smith admitted that her relationship with her son is still difficult but conflicts occur less often. Second, Ms. Smith took a very active part in taking care of her dying father. It seems that her father’s death brought the whole family closer together. Third, Ms. Smith reported spending more time with her friends and having deeper relationships with them. Particularly, she has been taking care of a seriously ill friend spending many hours in the hospital and advocating for her. Furthermore, she has been sponsoring two members of the Overeater Anonymous Group. She reported that many friends view her as a good listener and a loyal, supportive person. It seems that Ms. Smith has shifted her focus from herself to other people. She noted that helping other people increased her self-esteem and feelings of being useful. Additionally, Ms. Smith reported being interested in close relationship with a male friend, something she had previously seen as impossible. Finally, she stated that her social skills improved markedly. She reported to be more assertive and less emotional while dealing with conflicts. Her communication skills became better, which particularly was observed during recent sessions. For example, she is able to listen to carefully, focus on the topic, ask for clarification, give an appropriate answer etc.
Asking for and/or accepting help is still very difficult to her, but it is somewhat easier than before the treatment.

Her vocational situation is not resolved completely, but it has been improved. Ms. Smith was temporarily employed as a clerical worker. Unfortunately, she had to quit the job to spend more time with her seriously ill father. Ms. Smith is currently unemployed, but she has undertaken necessary steps leading to obtaining a job. First, she applied to the local Vocational Rehabilitation Agency for services, and she is currently waiting to be evaluated and placed in a supported employment setting. Second, she has returned to school and is currently seeking education in pastoral counseling. She reported that her schoolwork has been very difficult to her, because she has been still experiencing some problems with fast processing of information, remembering facts, and organizing learned material. However, in spite of these challenges, she admitted that the schoolwork is a big source of personal satisfaction. Additionally, she has been serving an internship in a local hospital, which is one of the program requirements. The internship in the hospital seems to be a great opportunity to practice social skills, improve client’s self-confidence and focus on other people needs. Finally, Ms. Smith is actively seeking a job and she is responding to many job advertisements. She seems to be a very resourceful woman, who knows how to find necessary job related information, and who uses any opportunities in finding a job.

Another source assessing the client’s outcome is GAF score that was part of her initial diagnosis. The client’s GAF at the 6-month follow-up was estimated as equal 70, which was higher in comparison to a score of 54 at the initial assessment. Ms. Smith experiences some mild symptoms of depression and anxiety, but she is able to manage
them. Most of these symptoms occur in stressful situations. She has several meaningful relationships and is socially very active. Ms. Smith's general functioning is good.

In general, according the information obtained from Beck Depression Inventory-I (Beck, 1978), Sheehan Anxiety Scale (Sheehan, 1983), clinical notes and observation, Ms. Smith's cognitive, emotional, social, and vocational functioning has been improved after 6 months of treatment. These findings were confirmed by the client's responses on the Client Satisfaction Questionnaire. Changes in each area of functioning seem to be uneven in their significance and pace but all of them are equally important in the client's improvement. Any progress in one area influences positive changes in the other one. For example, improvement in social area enhanced client's mood. Consequently, better mood improved cognitive and social functioning.

There are some complaints that have remained unchanged with no or minimal improvement. First, Ms. Smith is currently unemployed. Second, her sleep disturbances and fatigability are still present. Third, her ability in organizing her living space has not improved.
The purpose of this study was to measure efficacy of cognitive-behavioral techniques to decrease emotional problems following Traumatic Brain Injury and to increase client's social and vocational functioning. The results of this study and the results of several previous studies (Miller and Mittenberg, 1998; Ownsworth et al., 1998; Demark et al., 2002) indicated that cognitive-behavioral therapy is effective for TBI patients.

The most extensive studies regarding effectiveness of cognitive-behavioral treatment with post-concussive symptoms were done by Mittenberg and his colleagues (Miller & Mittenberg, 1998). The treatment protocol for TBI patients developed by Ferguson and Mittenberg (1995) can be considered as one of the most structured and empirically tested treatment for these particular symptoms related to TBI. Treatment offered by a current practice followed only partially this specific treatment protocol. Several techniques proposed by this protocol have been used by the current therapist. For example, cognitive restructuring was used to eliminate negative automatic thoughts. Second, activity scheduling, and tracking mastery activities were used to decrease symptoms of depression. Finally, compensatory techniques were introduced and practiced with a client to improve coping skills with anger, emotional overarousal, and difficulty concentrating.

There are several differences between the normative practice and the treatment protocol developed by Ferguson and Mittenberg (1995). First, treatment described in this
study was conducted over a period of 6-months, which can be considered as more extensive treatment in comparison to brief cognitive-behavioral treatment proposed by Ferguson and Mittenberg (1995) that consists of 12-sessions. Information obtained from clinical notes and observations indicated that some of client’s emotional, social and vocational difficulties were still present after 12 sessions. These findings suggest that even though brief cognitive-behavioral treatment can be effective with general population of TBI patients, the length of treatment and its intensity have to be adjusted to a particular client.

Second, cognitive restructuring technique used in this study was intended to recognize negative thoughts and to develop more adaptive ways of thinking not only about the origin of the symptoms but also about the client, environment, and anticipated future. As mentioned earlier, the main focus of the cognitive-behavioral treatment presented by Ferguson and Mittenberg (1995) was on identifying and changing negative thoughts about post-concussive symptoms, selective attention to these symptoms and misattribution of possibly stress related symptoms to brain damage. The observations done during the present study suggested that changing thoughts about the origin of symptoms is necessary but insufficient and it should be combined with changing negative thoughts about the client, his/her future and the environment. For example, the subject of this study applied for several job positions and she was rejected. The client explained this rejection as a result of her cognitive difficulties, such as problems with retrieving words and focusing on the topic. One goal of cognitive restructuring was to re-attribute these symptoms from the brain damage to a typical response to a stressful situation such as job interview. Another goal of cognitive restructuring was to find alternative reasons of
rejection and to change negative thinking about future job interviews. Such broad approach to cognitive restructuring helps the client to focus on many aspects of his/her negative thinking, and to improve a difficult situation by challenging the problem from several different angles.

Third, several additional techniques were used in this study as a preparation to cognitive restructuring and coping skills training. They were: identifying limitations and identifying strong emotions. It was noted that the client had difficulties with understanding the principles of cognitive techniques. She had also difficulties with following the journal of automatic thoughts. Therefore, additional techniques were introduced to the client to gradually prepare her for cognitive restructuring. She was asked to identify strong emotions that she has difficulties to cope with. The most frequent emotions mentioned by her were anger, depression and frustration. Next, automatic thoughts related to these emotions were discussed during sessions and more adaptive responses were developed with the client.

The client was also asked to identify her limitations, which intended to prepare the client to cognitive restructuring. Most frequent mentioned by her limitations were remembering facts, emotionality, distractibility and fatigue. Next, the source of these limitations was examined with the client. Possible false attributions of the limitations to the brain injury was pointed out and gradually changed to more realistic explanation. The client was taught several compensatory strategies in case of less flexible limitations that were probably directly related to the brain injury. As a result of these techniques implementation the client was able to focus, stay on one task, and work through it.
Difficulties with cognitive therapy implementation with the TBI client selected for this study suggest that this method should be simplified and adjusted to this particular population. There might be several sources of these difficulties, such as intellectual impairments caused directly by the brain damage, memory problems, distractibility, and tendency toward tangential thinking characteristic for TBI patients. It seems that using more simple techniques focused on very specific issues, reinforced by repetitions, and gradually followed by implementation of more difficult tasks, are helpful in cognitive-behavioral treatment for TBI patients.

Results of some previous studies suggested using behavioral techniques such as activity scheduling and social skills training until cognitive functioning becomes adequate in cases when cognitive restructuring is difficult to use (Ownsworth et al., 1998). These finding were supported by this study. It was noted that the client responded easier to behavioral techniques in comparison to cognitive techniques. Therefore behavioral techniques were introduced first and they were used until the client’s overall functioning, particularly cognitive abilities, stabilized.

Fourth, social skills’ training was introduced to the client in a current study, which differs from the model proposed by Ferguson and Mittenberg (1995). It is important to note that Mittenberg and his colleagues were focused on post-concussive, more specifically on emotional symptoms and their treatment. As discussed earlier post-concussive symptoms include several physiological, cognitive, behavioral and emotional complains that may but don’t have to lead to social difficulties. The subject of this study reported significant difficulties in social area. She stated also that social interactions and social support were very important to her. It was noted that the client exhibited some
social skills deficits, such as difficulties with being assertive, controlling irritability, managing anger, active listening and asking for help. Therefore, social skills’ training was considered necessary. The client reported a significant improvement in social functioning at the six-month follow-up. Furthermore, significant improvement of communication skills was also observed at the six-month follow-up. Improvement in social area of functioning can be attributed partially to the social skills training. Positive changes in social functioning improved client’s mood and stimulated her search for a job.

Fifth, the client selected to this study was assisted in finding a job, which was omitted in a model proposed by Ferguson and Mittenberg (1995). As mentioned earlier treatment protocol developed by both authors was focused just on post-concussive symptoms following brain injury. This practice took much broader approach recognizing several additional complaints. One of them was difficulty in vocational area. Helping the client to find and sustain a job was one of the main therapeutic goals.

Finally, “Focus on the task” exercise was introduced to the client. This exercise can be considered as one of cognitive techniques that were intended to practice client’s concentration, organizational skills, and ability to focus on several stimuli. However, since this treatment was focused mainly on emotional and social problems, the main goal of these techniques was to train the client coping more effectively with frustration, negative self-evaluations, and anxiety while dealing with cognitively demanding tasks. As a result of these exercises, client’s responses to cognitive and language difficulties became less intense.

As mentioned earlier, the “Best Practice” treating psychological problems related to TBI should follow guidelines developed by Ferguson and Mittenberg (1995).
Psychological treatment should also cooperate with other professional providing treatment for additional complaints. In general, the “Normative Practice” didn’t follow directly guidelines proposed by Ferguson and Mittenberg (1995), even though several techniques proposed by this protocol were used by a current therapist. The “Normative Practice” took much broader approach dealing with several difficulties omitted by the authors. Therapeutic techniques were adjusted to the client’s needs and her abilities. Both techniques proposed by Ferguson and Mittenberg (1995) and additional techniques used by the current therapist seemed to be helpful. Moreover, close cooperation with cognitive and language therapists helped to improve simultaneously client’s functioning in several areas, which made the progress greater and more stable.
Chapter 6

Summary and conclusions

The purpose of this study was to examine the effectiveness of cognitive-behavioral therapy techniques with traumatic brain injury (TBI) individuals using a case study format. A subject of this study was a 54-year-old woman who suffered a traumatic brain injury in automobile accident. As a result of this accident, Ms. Smith experienced a number of physical and cognitive deficits. Ms. Smith’s physical difficulties included permanent loss of smell, back pain, and headaches. Ms. Smith’s cognitive disturbances included, among other deficits, in short- and long-term memory, word retrieval, making decisions, organizing thoughts, and remembering names and details of recent events. Ms. Smith also suffered depression and anxiety following the brain injury.

The major emphasis of this study was to reduce depression and anxiety related to TBI and to increase client’s social and vocational functioning. Anxiety and depression were pre- and post-tested using Beck Depression Inventory-I (Beck, 1978) and Sheehan Anxiety Scale (Sheehan, 1983). Social and vocational functioning were assessed using interview techniques and observations. The client’s overall functioning was evaluated with Global Assessment of Functioning Scale. Client’s satisfaction with therapy was evaluated using the Client Satisfaction Questionnaire.

The treatment implemented in this study was based on Cognitive-Behavioral Treatment principles. Cognitive theory links psychopathological symptoms with dysfunctional automatic thoughts, which are activated by stressful events. The Behavioral model defines problems in concrete, behavioral terms and it searches for relationships...
between behavior and circumstances leading to and following this behavior. Cognitive techniques included among others keeping record of automatic thoughts, challenging the internal critic, reattribution of negative thoughts to a more positive framework, etc. Behavioral techniques incorporated scheduling daily activities, mastery monitoring, identifying internal and external sources, “focus on a task” training, and social skills development. Finally, the client was assisted in finding a job.

Post-testing conducted after six months of treatment indicated significant decreases in both depression and anxiety. The score of 28 on BDI-I (Beck, 1978) at the time of initial assessment declined to 16 at 6-month follow-up. The score of 67 on Sheehan Anxiety Scale (Sheehan, 1983) dropped to 36 after 6 months of treatment. The client also reported improvement in social and vocational functioning. Both the client and the therapist evaluated the program as helpful and meeting the therapeutic goals. Treatment continuation on biweekly basis to maintain positive changes and therapeutic goals reevaluation have been recommended.

The results of this study proved that cognitive-behavioral treatment for TBI related depression and anxiety is effective. These outcomes seem to verify the results of previous studies discussing efficacy of cognitive-behavioral treatments for TBI related emotional difficulties, behavioral problems and the whole cluster of post-concussive symptoms (Ownsworth & Oei, 1998; Demark & Gemeinhardt, 2002; Medd & Tate, 2000; Miller & Mittenberg, 1998).

Several observations have been made during the course of treatment. First, the length of a brief treatment proposed by Ferguson and Mittenberg (1995) was found in this study as insufficient. This suggests that the length of treatment should be adjusted to
needs of a particular client. Second, the client had difficulties to understand the concept of cognitive restructuring and to follow the journal of automatic thoughts. Therefore, more simple techniques, such as recognizing strong emotions and personal limitations, were introduced to a client to prepare her to cognitive restructuring. Furthermore, cognitive techniques were preceded by behavioral ones. Behavioral techniques activated the client and improved her functioning to the point where cognitive techniques could be initiated. A similar strategy was suggested by other authors (Ownsworth et al., 1998).

Third, a current practice took a broad perspective recognizing and addressing complains from several different areas of functioning. It has been noticed that improvement in one area influenced positive changes in the other one. Close cooperation with language and cognitive therapists was particularly helpful.

It is important to note that some complains, particularly in a cognitive area, might be stable or difficult to improve. Therefore, the goal of this therapy was not to eliminate client’s problems but to develop compensatory coping skills that were helpful in dealing with them.

In general, the results of this study imply that cognitive-behavioral treatment for TBI related depression and anxiety is effective. However, some adjustments to a specific population of clients with Traumatic Brain Injury and cooperation with other health care providers seem to be necessary.

This study is not free from limitations. First, it is a single case study. Therefore, any broad generalizations cannot be made. Second, the client was treated by several professionals and it is difficult to estimate a degree of impact that each treatment had on
the client’s improvement. Further studies assessing efficacy of cognitive-behavioral
treatment for emotional and behavioral difficulties related to TBI are recommended.
Reference


77


http://www.criminology.unimelb.edu...sources/assessment/affect/bdi.html

Appendix

Client Satisfaction Questionnaire

Please help us improve our services by rating some statements about the therapy you have received. We are interested in your honest opinions, whether they are positive or negative. Please circle the appropriate number for each item. We appreciate your help.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Unsure</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

1 2 3 4 5 1. I feel that my therapist understands me.

1 2 3 4 5 2. My therapist treats me with respect and empathy.

1 2 3 4 5 3. I don’t feel comfortable with my therapist.

1 2 3 4 5 4. My confidentiality has been always maintained.

1 2 3 4 5 5. I have not always been clear about the goals of therapy.

1 2 3 4 5 6. This therapy helped me to deal more effectively with my problems.

1 2 3 4 5 7. I feel that I haven’t made any progress in this therapy.

1 2 3 4 5 8. This therapy has helped me to feel less depressed.

1 2 3 4 5 9. This therapy has no helped me to feel less anxious.

1 2 3 4 5 10. In overall sense, I am satisfied with this therapy.