

Georgia State University

ScholarWorks @ Georgia State University

Nursing Doctoral Projects (DNP)

School of Nursing

Spring 5-12-2017

Staff Education : Substance Abuse, Anxiety and Depression in Persons with Traumatic Brain Injury

Anna E. Hurlebaus

Follow this and additional works at: https://scholarworks.gsu.edu/nursing_dnp/projects

Recommended Citation

Hurlebaus, Anna E., "Staff Education : Substance Abuse, Anxiety and Depression in Persons with Traumatic Brain Injury." , Georgia State University, 2017.
https://scholarworks.gsu.edu/nursing_dnp/projects/3

This Project is brought to you for free and open access by the School of Nursing at ScholarWorks @ Georgia State University. It has been accepted for inclusion in Nursing Doctoral Projects (DNP) by an authorized administrator of ScholarWorks @ Georgia State University. For more information, please contact scholarworks@gsu.edu.

Recognizing Depression, Anxiety, and Substance Abuse in Persons with Traumatic Brain Injury:

An Assessment Tool for Staff

Anna Hurlebaus

Georgia State University

Abstract

Traumatic Brain Injury (TBI) is a global epidemic (Schwarzbold et al., 2008). According to Brey (2006), a brain injury occurs every 21 second in the United States, which results in 1.5 million head injuries annually.

The purpose of this project was to educate psychiatric personnel regarding the needs of the TBI population and to measure learning and retention.

This is a quality improvement project that utilized a pretest and posttest design with an educational intervention. The intervention was administered electronically via Microsoft PowerPoint. Results were measured with the *Wilcoxon Signed Rank Test*. A total of 17 participants completed the pretest and posttest, and 11 completed the second posttest; the second posttest administered six weeks after the initial posttest. The results show that knowledge increased from pretest to posttest, ($p < 0.05$), however, retention of the material did not occur per test results, ($p \geq 0.05$).

There is no other research to compare to these results. Therefore, more research and educational intervention are needed to educate psychiatric personnel regarding the needs of the TBI patient.

Recognizing Substance Abuse, Depression, and Anxiety in persons with Traumatic Brain Injury:
An Assessment Tool for Staff

Traumatic Brain Injury (TBI) is a global epidemic (Schwarzbold et al., 2008). According to Brey (2006), a brain injury occurs every 21 second in the United States, which results in 1.5 million head injuries annually. TBI is often referred to as *the silent epidemic* due to the prevalence of the injury (Brey, 2006). The true incidence of TBI is unknown because many injuries are undiagnosed or unreported (Ramesh et al., 2015).

Individuals who incur a TBI suffer from multiple symptoms post-injury (Schwarzbold et al., 2008). The TBI population has a higher incidence of psychiatric diagnosis than the general population (Schwarzbold, 2008). Mental disorders such as depression, anxiety and substance abuse (SA) or substance use disorder (SUD) are common in TBI (Jorge, 2008). As early as 1995, treatment of the psychosocial issues of the TBI patient was identified as the most challenging rehabilitation need (Morton & Wehmen, 1995). The complex psychosocial needs of this population can last a lifetime and require ongoing assessment (Koponen, 2002). Despite the evidence of the psychiatric needs of this population, TBI is not routinely assessed in mental health settings (Ramesh, et.al, 2015).

The proposed Doctor of Nursing Practice (DNP) project will take place in a private practice that offers comprehensive psychiatric assessment and evaluation, medication management and crisis services to child and adolescents, adult and geriatric patients. Patients are treated on both an inpatient and outpatient basis. The practice treats a wide variety of mental health issues which includes mood disorders, eating disorders, thought disorders, dementia, grief, trauma and other mental health issues.

The targeted group for this project is staff members at a private practice. Patient assessment and treatment within the group is an ongoing process carried out by a multidisciplinary team. The introduction of information regarding the incidence of TBI and SA can increase awareness and bring attention to an unrecognized group of patients. Staff members involved in patient care which include, physicians, advanced practice registered nurses (APRNS), counselors, social workers and technicians will be included.

As a first step in the development of an evidence-based project, the following PICO question was developed: If staff members at a private psychiatric practice complete an educational program regarding the psychiatric needs of persons with TBI, will knowledge levels increase and retention of information occur?

Background and Significance

The Centers for Disease Control and Prevention (2010), estimate that 1.7 million people suffer from a TBI annually. The cost of acute care and rehabilitation of the person with TBI is estimated at nine to ten billion dollars annually; disability needs and loss from work will add additional costs (Graham & Cardon, 2008). TBI is the leading cause of disability in those under 45, especially men (Bryce, Spitz & Ponford, 2015). Of these newly diagnosed patients with TBI, 52,000 die, 275,000 are hospitalized, and 1.3 million are treated and discharged (Centers for Disease Control and Prevention, 2006).

Townsend (2015) reported the number of TBIs would increase as American troops return home from combat in Iraq and Afghanistan. The United States Department of Veterans Affairs (2008) reported 30% of soldiers in combat experience a TBI yearly, and 1,500 will suffer a penetrating head wound annually. Frequently unreported, mild TBI (mTBI) accounts for 85 % of all TBIs and can result in several cognitive and emotional changes (The Centers for Disease

Control and Prevention, 2006; Ramesh et al., 2015). Murrey et. al (2004) noted that TBI is not adequately assessed in the psychiatric population. A total of 16.73% of patients in seven state hospitals had a documented history of TBI but were never treated. Burg, McGuire, Burright & Donnovick (1996) found a 68 % rate of TBI in a psychiatric inpatient population. All patients with a TBI noted symptoms began shortly after the injury (Burg, McGuire, Burright, & Donovanick, 1996). A total of 17 charts were randomly assessed for documentation of the injury, and none of the 17 charts had documentation of the injury (Burg, McGuire, Burright, & Donovanick, 1996). Also, those who suffered a TBI had longer inpatient stays due to more specialized needs TBI can lead to a lifetime of psychiatric issues (Koponen et al., 2002). Depression and alcohol abuse are the most common psychiatric diagnoses post injury (Koponen et al., 2002). Depression occurs in one-half of the TBI population within one year post-injury (Fann & Hart, 2009). This number increases to two-thirds of the TBI population experiencing depression within seven years (Fann & Hart, 2009). Seel & Kreutzer (2003) reported screening for depression should be a standard element of TBI assessment and protocols. It has been recommended that psychiatric patients, especially substance abusers, be routinely screened for TBI (Ramesh, et, al 2015). The need for a thorough screening tool for depression is indicated in persons with TBI (Seel & Kreutzer, 2003).

Anxiety disorders are also common in the TBI population coexisting in two-thirds of the population with major depression (Jorge, 2008). Anxiety can occur at any time post-TBI and ranges in severity from mild anxiety to panic with agoraphobia (Smith, 2006). Generalized anxiety disorder (GAD), obsessive-compulsive personality disorder (OCD), panic disorder, social anxiety disorder, and post-traumatic stress disorder (PTSD) increase after a TBI (2006).

West (2011) reported 50% to 60 % of all TBIs are related to some form of substance abuse. The use of alcohol can negatively affect long-term treatment and recovery from TBI (West, 2011). Many patients and family members with TBI do not receive an education regarding the influence of SA on TBI and how alcohol consumptions tends to increase after the injury (West, 2011). Persons with TBI have higher rates of SA than the general population; one out of two individuals with TBI has a SUD (Vinland National Center, 2011). Persons with disabilities (PWDs), many of whom are TBI survivors, are frequently turned away from SA treatment due to their disability status (West, 2011). Another barrier that impedes admission into SA facilities is the lack of transportation available to PWDs (Krahn, Deck, Gabriel & Farrell, 2007). Provider attitudes towards PWDs and differences in referrals due to disability negatively affect admission status. Many psychiatric facilities do not accommodate specialized needs, and the PWD is frequently turned away (Krahn, Deck, Gabriel & Farrell, 2007).

The association between TBI and SA is well documented (Ashman, Schwartz, Cantor, Hibbard & Gordon, 2004). SA is a risk factor for TBI, but little is known as to whether the TBI increases the chances of developing a SUD (Bjork & Grant, 2009). Those with an existing SUD frequently experience an increase in use after the injury (Bjork & Grant, 2009). SA can intensify the effects of the injury as well as lengthen recovery time (Bjork & Grant, 2009). Unfortunately, SA remains frequently unidentified as a contributor to the injury in many rehabilitation settings that treat TBI (Ashman et al., 2004).

Synthesis of the Evidence

The literature consistently supports the association between TBI and SA (Ashman et al., 2004). West (2011) found 50 % to 60 % of TBI patients had issues with alcohol and other drugs. These results are consistent with those of Bombadier, Ehde & Kilmer (1997) who found 44 % to

66 % of persons with TBI had a history of alcohol abuse. Premorbid rates of psychiatric disorders and SA were higher in the TBI patients than the general population, and recovery from both the injury and SA were longer (Bombadier, Ehde & Kilmer, 1997). In a study of 113 patients, 36% to 51 % were intoxicated at the time of injury (Bryce et al., 2015). Earlier research substantiates the high prevalence of alcohol use by those sustaining a TBI and the effects on recovery from both the injury and the SA. Miller (1992) reported 50 % who incurred a TBI had an existing SA problem before the injury, and the SA impeded recovery from the injury. The causes of the TBI were consistent. TBI results primarily from automobile accidents, falls and violence (West, 2011).

The presence of mood disorders post-TBI is supported (Fann & Hart 2009). Treating the psychosocial changes related to TBI has been identified as the most challenging rehabilitation need (Morton & Wehman, 1995). The TBI population has a higher incidence of psychiatric disorders than the general population (Schwarzbold et al., 2009). Major depressive disorder (MDD) is the most commonly diagnosed mood disorder in TBI patients (Schwarzbold et al., 2009). Depression is a long-term issue post – TBI which can last a lifetime (Kruetzer, Seel & Gorley, 2002). Depression occurs in 50 % of those with TBI within one year, and after a seven-year period, 75 % experience depression (Fann & Hart, 2009). Anxiety coexists in two-thirds of the TBI population with MDD (Jorge, 2008). Anxiety can manifest at any time and ranges in severity from panic to generalized anxiety disorder (Smith, 2006).

West (2011) reported the persons with TBIs are frequently turned away from SA treatment facilities due to their disability status. Barriers related to transportation, referrals, and provider attitudes block access to care (Khran et al., 2007). There was no mention in these studies if individuals were seeking mental health treatment outside of the SA issues. Although

SA and mental health are sometimes treated separately, some practitioners will treat both simultaneously if a patient cannot afford more than one treatment or is denied access to rehabilitation facilities (Smith, 2006). TBI is an exclusionary criterion for admission into a psychiatric hospital (C. Crenshaw, personal interview, February 3, 2016).

Conceptual Framework

Educating Psychiatric Staff in the Brain Injured Patient: A Conceptual Framework
Conceptual Frameworks in nursing help guide Doctor of Nursing (DNP) projects and direct the goal of research (Bonnell and Smith, 2014). Conceptual frameworks help maintain boundaries by providing organization and format for the projects' focus (Bonnell and Smith, 2014).

Identify and Define the Conceptual Framework

The conceptual framework selected for this project is Roy's Adaptation Model. The Roy Adaptation Model is a systems model where the individual is viewed in a holistic manner (Vera, 2014). Roy's theory incorporates a mind, body, spirit approach; individuals or groups are viewed as bio-psycho-social beings in constant interaction with the environment (Roy, 2014). Roy's framework views the goal of the individual as positive adaptation, and the nurse's role is to assist the individual with this process (Roy, 2014). Health is seen on a spectrum with illness as inevitable (Vera, 2014). Roy's model views death as part of the spectrum and a peaceful death is considered positive adaptation (Roy, 2014).

Within Roy's model are four modes that comprise the human system: these modes are physiologic, self-concept, group identity interdependence and role function (Roy, 2014). The physiological mode consists of the humans' basic survival needs such as oxygenation, elimination, fluids and nutrition (Roy, 2014). The self-concept mode involves beliefs and perceptions about the self; self-esteem and self-worth are included (Roy, 2014). The group

identity and interdependence mode involve balancing dependence and independence within groups (Roy, 2014). Role function describes how we adapt to role changes during both health and illness. The need for balanced social integrity is emphasized (Roy, 2014). All areas work together to accomplish adaptation. When a stimulus is harmful or stressful, adaptation is required to return to a state of health (Vera, 2014).

Application of the Conceptual Framework

The TBI is the stimulus which causes the need for adaptation. Ineffective coping is SA and the sequelae that result from unrecognized depression and anxiety; unrecognized depression and anxiety can lead to serious impairment in functioning (Jorge, 2008). Severe symptoms such as suicidal and homicidal thoughts can occur (Jorge, 2008). Psychotic symptoms may result with a lack of motivation and interest in all activities (Jorge, 2008). Lack of knowledge of these psychiatric issues affects all modes that comprise the positive adaptation of the family or individual unit (Roy, 2014).

The relationship of Roy's model to this project is the focus on adaptation and the holistic view of the individual (Roy, 2014). Psychiatric symptoms post-TBI can last a lifetime; therefore, adaptation is required on a consistent basis (Fann & Hart, 2009). Smith, 2006 stated TBI patients require constant reassessment to meet the changing needs of the TBI patient. Mental health disorders fall on a spectrum and mandate frequent assessment due to changes in severity of symptoms (Diagnostic and Statistical Manual of Mental Disorders, 2013). Some individuals never return to their previous level of functioning after a TBI, even after a mild injury, and require lifelong adaptation (Schwarzbold, 2008).

The extent of the injury determines the level of function of the individual and impacts the four modes of the human system identified by Roy. The modes are interdependent, and a

change in one affects the others (Vera,2014). A TBI causes physiologic changes which result in alterations in interdependence, role, self-concept and group identity, especially if an individual becomes dependent for any length of time. Adaptation is often required by the family as an individual unit to meet the needs of the person with a TBI.

Methodology

This is a quality improvement project that utilized a pretest and posttest design with an educational intervention. The intervention was administered electronically via Microsoft PowerPoint. The pretest and posttest were administered to measure learning, knowledge and retention. The project was developed and carried out by a board certified Clinical Nurse Specialist (CNS), Advanced Practice Registered Nurse (APRN) with 31 years of experience in nursing. The methodological framework used was the Plan, Do, Study, Act (PDSA) model for improvement. PDSA is also referred to as the Shewhart's cycle or the Deming's cycle.). PDSA is a framework used for the continual improvement of a project (The W. Edwards Deming Institute, 2016). This methodology was selected for its' structure, reliability, and enhancement of the project.

The PDSA is a systematic four-step process designed for the continual betterment of a product, process or project (The W. Edwards Deming Institute, 2016). The first step of the cycle is the "Plan" in which a goal or purpose is identified; the theory is selected, and the plan for improvement is developed. The second phase is the "Do" step; here the application of the plan is executed. In the "Study" step, the results are tested for validity and areas of improvement are identified. Finally, in the "Act" phase, the results can be integrated to support the original purposes of the study or theory (The W. Edwards Deming Institute, 2016).

Setting

The Doctor of Nursing Practice (DNP) project took place in a private group that offers comprehensive psychiatric assessment and evaluation, medication management and crisis services to children, adolescents, adults, and geriatric patients. Clients are treated on an outpatient basis. The practice treats a wide variety of mental health issues which includes mood disorders, eating disorders, thought disorders, dementia, grief, trauma and other mental health issues. The company employs two psychiatrists, five psychiatric nurse practitioners, nine licensed therapists, peers support specialists, medical assistants and administration. The practice treats 110 patients per day.

The group is in Lawrenceville, Georgia. Lawrenceville is a city in the heart of Gwinnett County, Georgia. Gwinnett County is a suburb of Atlanta, Georgia, and is located 30 miles northeast of downtown Atlanta. The practice has two locations, each with 16 exam rooms. The typical patient population consists of children, five years and older, adolescents, adults and geriatric patients. The practice treats primarily patients with private insurance or Medicare. Medicaid is accepted.

The PDSA for the quality improvement involving an educational PowerPoint on the psychiatric needs of TBI patients is outlined below. The plan was developed due to the needs of the patients and the group practice. The information in the PowerPoint was selected for the content and consistency of data which was selected to enhance the identification and treatment of substance use disorder (SUD), depression and anxiety in the TBI population. The PowerPoint material is consistent with the learning objectives.

Convenience sampling was used to recruit participants. The Chief Operating Officer (COO) sent an email to all staff via company email on January 17, 2017, and followed up with two reminder emails the following two weeks. The email included a detailed introduction of the

student researcher and the purpose of the project and its' purpose. Within the body of information was a statement indicating no one's job would be affected in any way for nonparticipation. A Georgia State University (GSU) approved flyer, which announced the project, was placed on an announcement board at the two facilities by the COO. All participation was voluntary, and all subjects were over the age of 18 and spoke English. Basic computer skills were required. Participants were required to open attachments, download the pretest and posttest then upload both documents and return them in an email to the student researcher. Anyone employed was eligible to participate. Everyone employed at the private practice is required to have a bachelor's degree. A total of 25 employees were targeted.

- Plan: The plan was to educate staff members who treat psychiatric patients with TBI of the specific psychiatric needs of these individuals. Roy's Adaptation Model was selected as the conceptual framework.
- Do: Approval from the GSU Internal Review Board (IRB) was obtained on December 12, 2016. Written consent from the COO was sent to the DNP committee chair and to the student researcher. A pretest, posttest, posttest format was utilized to measure learning and retention of the material presented. The student researcher developed the tests as well as the content of the PowerPoint. The PowerPoint contained information regarding the signs and symptoms of depression, anxiety, and SA as well as treatment options. The test had a total of 14 questions with nine multiple choice and three true or false questions presented. The last two questions asked for professional discipline, and the last question was open ended and asked how the information would impact interaction with psychiatric clients. Both the pretest and posttest were duplicates of one another. A consent form, pretest, posttest and PowerPoint was sent to staff via

company email. The PowerPoint contained 33 slides with objectives, body of information and references. The PowerPoint was voiced over. The participants required approximately 60 minutes to complete the project. Staff completed a pretest, read and listened to the information and completed a posttest. The participant emailed the results to the student researcher to the researcher's company address. The posttest was repeated at six weeks, and descriptive statistics, mean, median, mode, were run on the differences on test scores to measure learning and retention. The participants were grouped by discipline, for example, Nurse Practitioner, administration, assistant or physician. The results were entered on an excel spreadsheet. All information was kept on the student researcher's private, password protected *Lenovo* computer.

- Study: Descriptive statics were run on the pretest and posttest scores to evaluate the mean, median, and mode. Retention was measured with the scores from posttest taken at six weeks. The results of both posttests were compared and analyzed to measure retention. Results for each question gave needed feedback for improvement of each topic discussed. Information was modified per results.
- Act: The results from the test were used to adjust the information on the PowerPoint and measure the effectiveness of the teaching tool.

Data Analysis Plan

The measurement for this project was pretest and posttest scores; the mean, median, and mode were calculated for each question. Results for each question gave needed feedback for improvement of each topic discussed. Information was modified per results.

Budget

The only budget required was time management on the part of the student researcher.

Data Collection

The research material included a pretest, PowerPoint and posttest sent via company email. The differences in scores from the pretest and posttest were measured. The scores from the posttest administered at six weeks were compared to the posttest taken immediately after the program. The comparison was made by comparing the mean, median and mode. The results were used to analyze the effectiveness of the material presented, retention of the material and the need for future information.

Components of Analysis

The key persons involved in the analysis of this DNP project included the principal investigator, Dr. Lee Eades, the student researcher, Anna Hurlebaus, and the statistician, Julia Gable. The statistical software used was *SAS, version 9.4*. Descriptive statistics, mean, median and mode were run on pretest and posttest scores. *Microsoft Excel* was also used for calculating results.

A total of 17 participants completed the pretest and posttest, and 11 completed the second posttest; the second posttest administered six weeks after the posttest will be referred to as the second posttest. The professionals who completed the study included five Advanced Practice Registered Nurses (APRNS), three office staff, two administrators and ten assistants. The descriptive statistics were calculated for the total scores and the point differences for each participant between their pretest, posttest and follow-up test scores. Due to the small sample size, the *Wilcoxon Signed Rank Test* was used to test for differences between pretest and posttest, pretest and follow-up test, and posttest and follow-up test.

Table one lists the total pretest, total posttest, and differences between the pretest and posttest scores (posttest minus pretest) for the 17 participants who completed the pretest and posttest. A total of 15 out of 17 participants scored higher on the posttest than the pretest. Out of the 17 who completed both pretest and posttest, one scored lower by one point and one scored the same on both tests. See Table 1, Appendix 1.

Table 2 shows descriptive statistics for the total pretest score, total posttest score, and the difference between the pretest and posttest scores (posttest minus pretest). The median pretest score was 7, and the median posttest score was 11. The median difference between pretest and posttest scores was 3. The posttest score was significantly higher than the pretest score (Wilcoxon signed rank test $p < 0.05$). See Table 2, Appendix 2.

Table 3 lists the total pretest, total posttest, and total follow-up scores, with the differences between the pretest and posttest, pretest and follow-up test, and posttest and follow-up test, for the 11 participants who completed all three tests. All 11 participants scored higher on the posttest than the pretest, and 6 out of 11 participants scored higher on the follow-up test than the pretest. Retention is measured by subtracting the posttest score from the follow-up test score for each participant. Eight participants had a lower follow-up score than their posttest score, and 3 participants had the same follow-up score as their posttest score. See Appendix 3.

Table 4 shows descriptive statistics for total pretest, total posttest, and total follow-up scores, with the differences between the pretest and posttest, pretest and follow-up test, and posttest and follow-up test. For the 11 participants who completed all three tests, the median pretest score was 7, the median posttest score was 11, and the median follow-up score was 9. The median difference between pretest and posttest scores was 3. The posttest score was significantly higher than the pretest score (Wilcoxon signed rank test $p < 0.05$). The median difference between

pretest and follow-up scores was 2. The follow-up score was not significantly different than the pretest score (Wilcoxon signed rank test $p \geq 0.05$). The median difference between posttest and follow-up scores was -2. The follow-up score was significantly lower than the posttest score (Wilcoxon signed rank test $p < 0.05$). See Appendix 4.

The results show that knowledge increased from pretest to posttest, ($p < 0.05$), however, retention of the material did not occur per test results, ($p \geq 0.05$). The PICO question was answered: If psychiatric professionals complete an educational program on TBI, will knowledge and retention of the material occur? Although the results for retention were not significant, individuals may have learned something. Some of the statements given that answered the question “How will this assessment tool change your assessment and interaction of the psychiatric patients you encounter?” include: “I have more understanding of the importance of this treating the TBI patient,” “Our challenge is to reverse the long-standing exclusion of care for TBI patients and to create a comprehensive care system to meet the needs of these patients,” “I have a better understanding of what questions to ask during a review of systems,” “Be more aware of the complications of TBI thus increasing diligence in patient assessment.”

There is no other research to compare to these results. Despite the plethora of articles about TBI, none were found that focus on teaching psychiatric staff the specialized needs of this population. Schwartzbold, et al, (2008) recognized the higher incidence of psychiatric issues within the TBI population. Ramesh, et al., (2015) stated many TBIs go unrecognized and unreported. Documentation and assessment remain inconsistent in state psychiatric hospitals (Murray, Starzinsky and LeBlanc, 2004). Care of the TBI patients suffers when psychiatric needs are not recognized and treated (Jorge, 2008). A large population in need of care

unrecognized and untreated. The need for more research and education regarding care for the TBI patient is indicated.

One of the limitations of this project includes resistance or disinterest to the subject matter. TBI is an exclusionary criterion for admission into inpatient psychiatric treatment, and many psychiatric professionals do not recognize the number of TBI patients in the overall psychiatric population (C. Crenshaw, personal interview, February 17, 2016). Therefore, they may feel the information is not applicable to their practice. Also, many psychiatric personnel do not know the definition of TBI and the fact that mild TBI can have profound effects on patient presentation and behavior (C. Crenshaw, personal interview, February 17, 2016). Also, many do not know how to treat this population, and they require longer inpatient stays (Murray, Starzinsky, and LeBlanc, 2004). Overcoming this lack of knowledge may require more than one educational program.

Another limitation is the use of email. The first project email was sent on January 3, 2017; the day staff returned to work on the holiday. Employees may have accumulated multiple communications over the holiday, and due to the number of emails received, they deleted the information. Despite the reminder emails, staff may have forgotten about the project or become too busy to participate. The estimated time for project completion, 60 minutes, may have been a deterrent as well as the fact that no continuing education credits were offered. More employees may have been involved if the material had been presented in person, at one of the facilities. Very good point.

Practice Implications

The literature indicates the astounding number of people who will experience a TBI annually. Per the Centers for Disease Control and Prevention (2010), 1.7 million people will incur a TBI

annually. Also noted is the fact that TBI is often not reported and goes unrecognized in the TBI psychiatric population (Ramesh et. al, 2015). The need for more education among mental health personnel is indicated.

This DNP project was unique in that no other similar studies have been published. The results indicate the need for more education regarding the assessment and treatment of the TBI patient within the psychiatric population. The DNP is in a leadership position to educate medical and psychiatric practitioners, treat this population and continue to disseminate research. Also, TBI is considered a vulnerable population, and work within this area provides care to a group in need.

In conclusion, the PICO question for the DNP project was answered. After completing an educational program on the mental health need of the TBI patient, participants increased knowledge but did not retain the information. There were no other studies to compare results with which indicates the need for further research. The TBI population is a large, vulnerable population with special psychiatric needs. The DNP can take the lead in breaking new ground in education, treat and research.

Appendix 1

Table 1

Pretest and Posttest Scores (n=17)

Participant	Total Pretest Score	Total Posttest Score	Total Posttest minus Total Pretest Score
1	7	12	5
2	6	11	5
3	5	10	5
4	7	11	4
5	9	12	3
6	10	11	1
7	7	10	3
8	4	11	7
9	8	11	3
10	10	10	0
11	6	9	3
12	8	7	-1
13	8	11	3
14	6	10	4
15	8	10	2
16	7	12	5
17	8	10	2

Appendix 2

Table 2

Descriptive Statistics on Pretest and Posttest Scores (n=17)

	Total Pretest Score	Total Posttest Score	Total Posttest minus Total Pretest Score
N	17	17	17
Mean	7.3	10.5	3.2
Median	7.0	11.0	3.0
Mode	8.0	10.0	3.0

Appendix 3

Table 3

List of Pretest, Posttest and Follow up Scores (n=11)

Participant	Total Pretest Score	Total Posttest Score	Follow-up Total Score	Posttest minus Total Pretest Score	Follow-up minus Total Pretest Score	Follow-up minus Total Posttest Score
1	7	12	10	5	3	-2
3	5	10	10	5	5	0
4	7	11	11	4	4	0
5	9	12	11	3	2	-1
6	10	11	9	1	-1	-2
7	7	10	6	3	-1	-4
8	4	11	7	7	3	-4
9	8	11	8	3	0	-3
13	8	11	11	3	3	0
15	8	10	7	2	-1	-3
16	7	12	7	5	0	-5

Table 4

Table 4

Descriptive Statistics on Pretest, Posttest, and Follow up Test Scores Participants who completed the follow up Posttest (n=11)

	Pretest Total Score	Posttest Total Score	Follow-up Total Score	Posttest minus Pretest Total Score	Follow-up minus Pretest Total Score	Follow-up minus Posttest Total Score
N	11	11	11	11	11	11
Mean	7.3	11.0	8.8	3.7	1.5	-2.2
Median	7.0	11.0	9.0	3.0	2.0	-2.0
Mode	7.0	11.0	7.0	3.0	-1.0	0.0

Appendix 5

<p>Ashman, T. A., Schwartz, M. E., Hibbard, M. R., & Gordon, W. A. (2004). Screening for substance abuse in individuals with traumatic brain injury. <i>Brain Injury</i>, 18(2). 191-202.</p>				<p>Grade Level of Evidence: Level VII: Strong recommendation, moderate quality evidence. Level IV study.</p>
Hypothesis/Question	Design	Sample	Measurement	Results
<p>To determine the utility, sensitivity, accuracy and specificity of CAGE, BMAST, SASS-I in TBI patients.</p>	<p>Qualitative, mixed method. Descriptive Interview, data from self reports, scores from BMAST, Cage, SASS-I. Descriptive statistics, two studies were conducted.</p>	<p>Sample 1: adult patients ages 16-25, one year post TBI. Axis I diagnosis of SA. Sample 2: adult patients over 18, three to four years post TBI. Axis I diagnosis SA.</p>	<p>Study 1: Analysis of demographic data, Injury level, mean, Chi squared p value. Study 2: Analysis of dichotomous variables yes/no, analysis of demographic data.</p>	<p>Specificity for 3 scales was moderately high 81 %-83% , CAGE specificity high for pre and post TBI, 96 % , 86%, Sensitivity varied, CAGE highest range 91 %-95 % SASSI – 32 % -95 % . CAGE is effective for measuring alcohol use with TBI. SASSI had more variable sensitivity .</p>
<p>Bellal, J., Mazhar, K., Viraj, P., Kulvatunyou, N., Zangbar, B., O’Keefe ,T., ChB, A., Tang, A., Green, D., Gries, L., Friese, R (2014). Adverse effects of admission blood alcohol on long-term cognitive function in patients with traumatic brain injury. <i>Journal of Trauma Acute Care</i>, 78,403-406.</p>				<p>Grade Level of Evidence : Level Level VII: Strong recommendation, moderate –quality evidence. Level III study.</p>
Hypothesis/Question	Design	Sample	Measurement	Results
<p>Alcohol intoxication at the time of TBI has a negative effect on long-term cognitive functioning.</p>	<p>Two year retrospective study. Quantitative, descriptive statistics.</p>	<p>A total of 64 patients with moderate to severe TBI admitted to level I trauma blood alcohol level(BAL)</p>	<p>BAL on admission, AIS, GCS, FIM scores measures.</p>	<p>Median AIS score was 3, GCS 11. FIM score on discharge 17, SD cognitive improvement 8.6. Mean alcohol score on</p>

		<p>showed alcohol in system. Patients were discharged to rehabilitation</p>		<p>admission was 132. Alcohol intoxication at time of injury is associated with lower improvement in long term cognitive function.</p>
--	--	---	--	--

References

- American Psychiatric Association. (2013). Depressive Disorders. In *American Psychiatric Association: Diagnostic and Statistical Manual of Mental Disorders* (Fifth ed., pp. 155-296). Arlington, VA: American Psychiatric Association.
- Ashman, T. A., Schwartz, M. E., Hibbard, M. R., & Gordon, W. A. (2004, February 2004). Screening for substance abuse in individuals with traumatic brain injury. *Brain Injury, 18*(2), 191-202.
- Bjork, J. M., & Grant, S. J. (2009, July 26). Does traumatic brain injury increase the risk for substance abuse? *J Neurotrauma, 7*, 1077-1082. <http://dx.doi.org/10.1089/neu.2008.0849>
- Bombardier, C. H., Ehde, D., & Kilmer, J. (1997, June). Readiness to change alcohol drinking habits after traumatic brain injury. *Archives of Medical Rehabilitation, 78*, 592-595.
- Bonnel, W., & Smith, K. V. (2014). *Proposal Writing for Nursing Capstones and Clinical Projects*. New York: Springer Publishing Company.
- Brey, R. (2006). The silent epidemic: Traumatic brain injury's massive impact on sufferers and society. *Neurology Now, 2*(5). Retrieved from <https://patients.aan.com/resources/neurologynow/?event=home.showArticle&id=ovid.com:bib/ovftdb/01222928-200602050-00006>
- Bryce, S., Spitz, G., & Ponsford, J. (2015). Screening for Substance Use Disorders Following Traumatic Brain Injury: Examining the Validity of the AUDIT and DAST. *Journal of Head Trauma, 30* (5), E40-E48. <http://dx.doi.org/10.1097/HTR.0000000000000091>

- Burg, J. S., McGuire, L. M., Burright, R. G., & Donovan, P. J. (1996). Prevalence of Traumatic Brain Injury in an Inpatient Psychiatric Population. *Journal of Clinical Psychology in Medical Settings*, 3 (3), 243-251. [http://dx.doi.org/10.68-9853/96/0900-0243\\$09.50/0](http://dx.doi.org/10.68-9853/96/0900-0243$09.50/0)
- Center for Neuro- Skills. (2016). Retrieved from <http://www.neuroskills.com/resources/rancho-los-amigos-revised.php>
- Centers for Disease Control and Prevention. (2010). *Get the stats on Traumatic Brain Injury in the United States*. Retrieved from www.cdc.gov/traumaticbraininjury/.pdf/Bluebook_factsheet-a.pdf
- Depression assessment after traumatic brain injury: an empirically based classification method. *Archives of Physical Medicine Rehabilitation*, 84, 1621-1628. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/14639561>
- Fann, J., & Hart, T. (2009). Depression after traumatic brain injury. Retrieved from <http://www.msctc.org/tbi/factsheets/Depression-After-Traumatic-Brain-Injury>
- Graham, D. P., & Cardon, A. L. (2008). An update on substance use and Treatment following traumatic Brain Injury. *Annals of New York Academy of Sciences*, 1141, 148-162. <http://dx.doi.org/10.1196/annals.1441.029>
- Jorge, R. E. (2008, June, 1). Mood and anxiety disorders following traumatic brain injury. *Psychiatric Times*, 1-2. Retrieved from <http://www.psychiatrictimes.com/articles/mood-and-anxiety-disorders-following-traumatic-brain-injury>
- Koponen, S., Taiminen, T., Portin, R., Hinanen, L., Isoniemi, H., Heinonen, H., Tenovuo, O. (2002, September). Axis I and II psychiatric disorders after traumatic brain injury: A 30-year follow-up. *American Journal of Psychiatry*, 159, 1315-1321. <http://dx.doi.org/DOI:10.1176/appi.ajp.159.8.1315>

- Krahn, G., Deck, D., Gabriel, R., & Farrell, N. (2009, July 9). A population-based study on substance abuse treatment for adults with disabilities: Access, utilization, and treatment outcomes. *The American Journal of Drug and Alcohol Abuse: Encompassing all Addictive Disorders.*, 33, 791-798.
<http://dx.doi.org/http://dx.doi.org.ezproxy.gsu.edu/10.1080/00952990701653750>
- Morton, M. V., & Wehman, P. (1995). Psychosocial and emotional sequelae of individuals with brain injury: a literature review and recommendations. *Brain Injury*, 9, 81-92.
<http://dx.doi.org/10.3109/02699059509004574>
- Murray, G. J., Starrzinski, D. T., & LeBlanc, A. J. (2004, August). Base Rates of traumatic Brain Injury History in Adults Admitted to State Psychiatric Hospitals ; A 3-Year Study. *Rehabilitation Psychology*, 49(3)(3), 1-8. <http://dx.doi.org/10.1037/0090-5550.49.3.259>
- Ramesh, D., Keyser-Marcus, L., Ma, L., Schmitz, J. M., Lane, S., Marwitz, J. H., Moeller, F. (2015). Prevalence of traumatic brain injury in cocaine-dependent research volunteers. *The American Journal on Addictions*, 24, 341-347. <http://dx.doi.org/10.1111/ajad.12192>
- Roy, C. (2014). *Generating Middle Range Theory*. Retrieved from [http://gilfind.gpc.edu/vufind/Search/Results?lookfor=Callista+Roy&type=AllFields&submit.x=27&submit.y=10&submit=FindMiddle Range Theory](http://gilfind.gpc.edu/vufind/Search/Results?lookfor=Callista+Roy&type=AllFields&submit.x=27&submit.y=10&submit=FindMiddle+Range+Theory)
- Schwarzbold, M., Diaz, A., Martins, E. T., Rufino, A., Amante, L. N., Thais, M. E., Walz, R. (2008, August). Psychiatric disorders after traumatic brain injury. *Neuropsychiatric Disease and Treatment*, 4, 797-816. Retrieved from <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2536546/>
- Smith, D. H. (2006). Mild traumatic brain injury and psychiatric illness. Retrieved from <http://www.bcmj.org/article/mild-traumatic-brain-injury-and-psychiatric-illness>

Townsend, M. (2015). Military Families. In K. E. Crowley (Ed.), *Psychiatric Mental Health Nursing Concepts of Care in Evidence-Based Practice* (pp. 851-864). Philadelphia: F.A. Davis Company.

U.S Department of Veterans Affairs (2008). Polytrauma/TBI System of Care. Retrieved from www.polytrauma.va.gov

Vera, M. (2014). Sister Calista Roy's Adaptation Model. Retrieved from <http://nurseslabs.com/sister-callista-roys-adaptation-model>

West, S. (2011). Substance use among persons with traumatic brain injury: A review. *Neurorehabilitation*, 29(29), 1-8.