A Pre and Post Test Evaluation of a Substance Use Disorder Training Curriculum Used in Training Students of The Carter Center's Mental Health Program in Liberia

By
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A Pre and Post Test Evaluation of a Substance Use Disorder Training Curriculum Used in Training Students of The Carter Center's Mental Health Program in Liberia

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SKILLS

Program Planning, Development, Implementation and Evaluation, Program Management, Training, and Technical Assistance, and Curriculum Design.

EXPERIENCE

VETERANS ADMINISTRATION- ATLANTA VAMC

Contract Clinical Liaison – April 2013 to Present

- Serve as the link between Atlanta VAMC and community partners providing mental health services to veterans as part of a national pilot program.
- Provide technical assistance and advice to community partners contracted with the VA to provide mental health services.
- Conduct compliance reviews of community partner services to ensure conformance with contracts and program requirements, and make recommendations to VA Contracting Officer regarding corrective actions needed when community partners are not performing to contract standards.
- Analyze existing systems in both the Atlanta VAMC and the community partner programs to identify any barriers for Veterans to received care. Collaborate with Atlanta VAMC staff and community partners to remove barriers to care.
- Serve as the local contact for Atlanta VAMC on the national quality improvement study designed to evaluate the community mental health treatment (CMHT) pilot programs across the nation. The local contact reviews data collected by the Program Evaluation Resource Center (PERC) evaluation team, reports data to the local CMHT team, and address any problems locally that may arise in data collection or reporting.

ANKA BEHAVIORAL HEALTH INC.

Regional Director – October 2011 to January 2013

- Developed, implemented and managed a public mental health program as a community partner with the State of Georgia Department of Behavioral Health and Developmental Disabilities.
- Reviewed the Department of Justice Settlement Agreement with the State of Georgia and other legislative documents to develop policies and procedures, and implement the public mental health program of Assertive Community Treatment (ACT) services, an evidenced-based practice.
- Conducted literature reviews and collaborated with subject matter experts in the development of the Anka ACT Program.
- Evaluated the Anka Act Program using the evidenced-based assessment tool for ACT services, the DACTS Fidelity Model, and developed corrective action plans to address identified areas for improvement.

- Led Anka staff in maintenance and improvement of ACT Services, assisting them with trouble shooting problems and difficulties in meeting program standards.
- Represented the agency with all funding sources, referral sources, and governing bodies, and developed messages for marketing Anka's ACT Program.
- Planned and developed new projects including seeking new revenue streams to include responding to request for proposals (RFPs), grants, etc.

DEKALB COMMUNITY SERVICE BOARD- RESIDENTAL SUBSTANCE ABUSE PROGRAM (RSAP)

Program Director – August 2010 to October 2011

- Founded, developed, and implemented a substance abuse program for homeless veterans in partnership with the Atlanta VAMC.
- Conducted ongoing assessments of the program performance using standard evaluation tools and informal evaluation methods to develop correction action plans for continuous quality improvement.
- Administered and guided the maintenance of the RSAP clinical program for homeless, male veterans in a residential substance abuse treatment program.

ANCHOR HOSPITAL

Part-Time Therapist – October 2008 to August 2010

- Assessed clients' needs related to addiction, mental health, assessing potential strengths and weaknesses, legal issues and violence histories, completing psychosocial assessment and written treatment plans.
- Developed and conducted curriculum for group therapy and psychoeducational groups addressing clients' addiction using evidenced-based treatment protocols.
- Conducted individual therapy sessions with clients; regularly evaluating client progress toward meeting treatment plan objectives, reassessing and amending client treatment plans as necessary.
- Facilitated family therapy sessions addressing family's issues of enabling and other codependency related problems, and plans for discharge including continuing care plans for the family.

OASIS COUNSELING CENTER

Clinical Director – April, 2004 to September 2007

- Directed all clinical programming of the agency in providing wrap around services to families involved with local Department of Family and Children Services. OASIS provided services in 26 counties in Georgia and employed over 100 independent contractors.
- Ensured compliance with standards required by the State of Georgia Department of Human Resources. Instrumental in raising quality of assessments and performance standards for clinical staff, ensuring that best practices were utilized for all clients.
- Developed the policies and procedures to become a CARF accredited agency, and in restructuring the organization in order to provide Intensive Family Intervention Services.

MAGELLAN BEHAVIORAL HEALTH
Sr. Care Manager – April, 2003 to April, 2004

- Monitored inpatient and intermediate level of care services related to mental health and substance abuse treatment to ensure medical necessity and effectiveness.
- Provided telephone triage, crisis intervention and emergency authorizations as assigned.
- Participated in QI activities, including data collection, tracking and analysis.

ST. JUDE'S RECOVERY CENTER
Project Assist Program Coordinator – September 1997 to April, 2003

- Directed the Project Assist clinical program for homeless, HIV positive women in a residential substance abuse treatment program.
- Submitted reports, as required by the agency, funding sources and regulatory entities.
- Supervised staff, including coordinating all program and staff schedules, monitoring casework activity and staff record keeping, and conducting weekly multidisciplinary clinical team meetings.
- Maintained a client caseload, provided individual therapy, conducted weekly therapy groups, and completed required records for clients on caseload and in therapy groups.

PRACTICUM

THE CARTER CENTER – THE LIBERIA INITIATIVE
MPH Intern, January 2013 to Present

- Designed a curriculum for training credentialed nurses and physician assistance to return to their communities to help integrate substance abuse treatment and care into local primary healthcare systems.
- Traveled to Liberia and taught nurses and physicians the curriculum in substance abuse treatment and care.

AID ATLANTA
MSW Intern, September 1995 to May 1996

- Provided case management services to HIV positive individuals including education, referrals for resources such as housing, clothing, and rental and utility assistance.
- Answered on-call phone calls from the general public providing education about HIV/AIDS and information about HIV/AIDS services in the Atlanta area.
- Developed a database for AID Atlanta case managers about substance abuse treatment services in the Atlanta area.

PUBLICATIONS

HEALTH & SOCIAL WORK, VOLUME 28, NUMBER 2, PAGES 81-168, MAY 2003

Project Assist: A Modified Therapeutic Community for Homeless Women Living with HIV/AIDS and Chemical Dependency*"*

EDUCATION

EMORY UNIVERSITY

Master of Public Health, expected graduation 5/2014, coursework completed 11/2013

CLARK ATLANTA UNIVERSITY

Master of Social Work, 1997

GEORGIA STATE UNIVERSITY

Bachelor of Business Administration, 1990

VOLUNTEER

AID ATLANTA – AIDS 101 EDUCATION PROGRAM

November 2001 to Present

- Assist with logistics of the program that includes registering participants, serving food, monitoring breakout sessions, handing out educational materials, and answering participants' questions.
- Facilitate training in a breakout session titled Sex, Drugs and HIV.
- Plan messages and marketing strategies with the program director.

ACKNOWLEDGEMENTS

Nzinga A. Harrison, MD for advocating with The Carter Center to allow me to work on this project and accompany her to Liberia, for consultation on this evaluation, her encouragement, guidance and mentorship. She is a role model, teacher, friend and inspiration.

The Carter Center Mental Health Program for supporting my involvement in this project.

Iris Smith, PhD for her insightful feedback, and support.

My partner/wife, Joan Campitelli, for her support and encouragement, and her willingness to also sacrifice so that I could complete the CMPH program. Her love and support is my rock particularly over these past few years.

My parents without their financial support obtaining this degree would not have been possible. I would give it all back to have them here, but I am sure they know my accomplishments and are proud that they played a part in it.

ABSTRACT

It is estimated that forty percent of Liberia's population suffer from post-traumatic stress disorder (PTSD). The Liberian Ministry of Health and Social Welfare invited The Carter Center to help them build a sustainable mental health system. A curriculum for substance use disorder (SUD) was developed as part of this training. The SUD curriculum was taught as a one week training for the current group of students in The Carter Center MHP, Cohort 5, and the training was modified as a one day in-service training for Graduates of The Carter Center MHP. A pre and post-test evaluation of this curriculum was conducted. In addition, both groups were also given qualitative evaluations which were examined for any trends. The average score on the pre-test for Cohort 5 was 45% and their post-test score average was 91%. A paired-sample t-test analysis was done to determine if this improvement in scores was significant. Results of the pre and post-test scores showed significant improvement, $t = 23$, (p-value < 0.001). The average score on the pre-test for the Graduates was 47% and their post-test score was 81%. A paired-sample t-test analysis was done to determine if this improvement in score was significant. Results of the pre and post-test scores showed significant improvement, $t = 23$, (p-value < 0.001). A final analysis was done to compare Cohort 5 and the Graduates improvement scores. This analysis was done using an independent sample t-test. Results of the t-test showed a greater improvement in scores of Cohort 5 as compared to the Graduates, statistically significant with $t = 2.56$, (p-value < 0.015).

Conclusions, Recommendations and Implications

This evaluation will contribute to the body of literature about the implementation of substance use disorder interventions particularly in LAMICs that have high incidences of mental illness as a result of trauma.

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CHAPTER 1-INTRODUCTION

Problem Statement

Liberia is a country on the coast of West Africa that has a mental health crisis. This crisis is the result of trauma its people experienced from two successive civil wars that ravaged the country from 1989 to 2003. Many Liberians saw their friends and family members killed or raped during the war. Approximately 50 to 70 percent of women and girls were sexually assaulted. It is estimated that forty percent of Liberia's population suffer from post-traumatic stress disorder (PTSD). Ex-combatants from the civil war were significantly impacted as well. It is estimated that 44 percent of ex-combatants have PTSD, 40 percent have symptoms of major depression, and 11 percent have contemplated suicide. In addition the stigma of mental illness in Liberia is a compounding factor of the problem. Patients, families and some health workers believe that mental illness is a punishment for bad behavior. This misunderstanding and lack of access to services leads to families and communities using potentially harmful practices including dangerous physical restrain which provides only further distress to those with mental illness. (Carter Center, n.d.)

As a result of this mental health crisis the Liberian Ministry of Health and Social Welfare invited The Carter Center to help them build a sustainable mental health system. In 2010 The Carter Center launched a Mental Health Program (MHP) in Liberia. This program is a five-year initiative to create a sustainable mental health system in Liberia. The program has 3 main objectives to be achieved by 2015. These objectives are: 1) Train a sustainable and credentialed workforce of mental health clinicians, including 150 specialized nurses and physician assistants and 300 other mental health professionals,

such as community mental health workers. Existing nursing schools host training programs to build the nation's capacity for health education. After graduation, nurses and physician assistants have the opportunity to receive national credentialing as specialists in mental health, and graduates of the program work within the primary health care system to provide mental health services to the population. 2) Assist the Ministry of Health and Social Welfare in establishing and implementing its National Mental Health Policy, including dramatically increasing coverage to reach 70 percent of the population. 3) Create anti-stigma campaigns nationwide to improve public understanding of mental illnesses. Additionally, the program is helping to establish advocacy groups and educational programs to foster family and community support. (Carter Center, n.d.)

In the training of nurses and physician assistance The Carter Center MHP staff realized that these students needed to have additional specialized training about substance use disorders. The MHP staff contracted with Nzinga Harrison, MD to provide this training. Dr. Harrison is a physician board certified in General Psychiatry and Addiction Medicine. Dr. Harrison kindly elicited the MHP staff to allow this author to work with her on this project; this author is a licensed clinical social worker also with an expertise in addiction treatment, and a master of public health student using this project for this thesis.

Specialized training in substance use disorders is important in creating a sustainable mental health system in Liberia because substance use disorders are often associated with other mental illnesses, and given the current mental health crisis one would expect a high rate of substance use disorders as well. There is very limited data about the prevalence of substance use disorders in Liberia. While national prevalence studies have not been completed, various multicounty epidemiological studies point to

high rates of substance abuse (12%–44% among female and male ex-combatants, respectively) (Government of Liberia, Ministry of Health and Social Welfare, 2011).

Program Description

The curriculum was designed to be used with two groups. The first group was the current cohort of students participating in The Carter Center MHP, from here on referred to as Cohort 5. For this group the curriculum was taught through three days of didactic education in a classroom setting, and 2 days of clinical rounds where students would apply what they learned in the classroom to clients they were currently working with. The second group was graduates of The Carter Center MHP that were taught the same curriculum in a condensed version in a one day in-service training, from now on referred to as Graduates. The curriculum was designed to prepare the learner in skills needed to identify and manage substance use disorders. The curriculum reviewed the historical, epidemiological and social context of substance abuse in Liberia. It was taught via a framework of integrated mental health practice that identified substance abuse and co-occurring disorders in the primary care setting, so as to improve patient outcomes. The curriculum also addressed issues related to stigma, stages of change and the need for conceptualization of substance use disorders as chronic medical illnesses.

The objectives of the curriculum were as follows:

Objectives

1. Demonstrate an understanding of the Disease Model, Harm Reduction and Abstinence-Based models of Substance Use Disorders.

2. Demonstrate an understanding of the epidemiology of Substance Use Disorders in Liberia.
3. Recognize the signs and symptoms of Substance Use Disorders.
4. Recognize the signs of opiate withdrawal, apply the appropriate screening tool for opiate withdrawal, and know the correct detox protocol for opiates.
5. Recognize the signs of alcohol withdrawal, apply the appropriate screening tool for alcohol withdrawal, and know the correct detox protocol for alcohol.
6. Recognize the signs and symptoms of Co-Occurring Disorders.
7. Describe key components of the Disease Model as it applies to Substance Use Disorders.
8. Assist patients in the development of a Relapse Prevention Plan.
9. Identify methods for connecting families and support system.
10. Develop 12 step and Al-Anon support groups in the community.
11. Describe the Stages of Change model and how utilize it with patients.
12. Utilize Motivational Interviewing to assist patients in recovery from Substance Use Disorders.

    Below is the curriculum outline:

Content Outline:

The curriculum was taught in five modules. Four modules taught in classroom instruction. The fifth module is a proctored clinical experience taught only Cohort 5.

Modules are included in the Appendix

1. What is Substance Abuse
    a. Definition (WHO, DSM-IV)

b. The Disease Model

c. Trauma-Informed Recovery

d. Relapse

e. Identification and Assessment (Age-appropriate assessment , documentation)

f. Co-Occurring Disorders Identification and Assessment (*Primary vs. Substance-Induced, Epidemiology)*

g. Family Symptoms

2. Biological Interventions

    a. Detox Protocols

    b. Medications used in the treatment of Substance Use Disorders

3. Motivational Interviewing

    a. Stages of Change

    b. Practical Applications

4. Theoretical Frameworks for Recovery

    a. Harm Reduction, Abstinence Model, 12 step model

    b. Trauma-informed Recovery

    c. Relapse Prevention Planning

    d. Starting 12 step meetings/Al-Anon

Upon completion of the curriculum instructions learners are expected to have the following competencies:

End of Course Competencies

1. Conduct and complete a substance abuse assessment

2. Appropriately use detox protocols and medications used in the treatment of Substance Use Disorders.
3. Appropriately document and implement relapse prevention plan
4. Analyze relationship between Substance Use Disorders and other Mental Health Disorders (i.e. Co-Occurring Disorders)
5. Collects data from multiple sources using assessment techniques that are appropriate to the patient's language, culture, and developmental stage, including, but not limited to, screening evaluations, rating scales, collateral contacts and laboratory tests.
6. Synthesizes, prioritizes, and documents relevant data.
7. Demonstrates effective clinical interviewing skills that facilitate development of a therapeutic relationship.
8. Educates and assists the patient in evaluating the appropriate use of traditional, spiritual and alternative therapies, and assist patient with integrating substance abuse recovery into relationship with significant others, family, and community.

Logic Model

The logic model provides graphic model of the evaluation of the substance abuse curriculum developed for The Carter Center MHP.

The logic model begins with the inputs which are the curriculum used for Cohort 5 and the curriculum used for the Graduates. The curriculum included above in the program description is the full curriculum that was used for Cohort 5. The curriculum used for the Graduates covered all of the subjects listed in the program description as

well; however the subjects were not covered in a shorter amount of time with limited classroom discussion of each subject.

Cohort 5 was provided instruction of the curriculum through 3 days of classroom instruction and 2 days of clinical rounds to apply the curriculum to actual clients they were working with in clinic and hospital settings. The Graduates were provided instruction in a one day in-service training. These were the activities of the evaluation.

The outputs of the evaluation were the pre/post test store comparison of the two groups. There were 21 student in the Cohort 5 group, and 43 students in the Graduate group. In addition all of the students from both groups completed qualitative student evaluation.

The outcomes of the evaluation are included in terms of short-term, intermediate, and impact outcomes. The short-term outcomes are represented by the changes in attitudes and knowledge of the students who completed the trainings. The short-term outcomes are:

- Students will gain and understanding of the disease concept of Substance Use Disorder (SUD)
- Students will gain empathy for their patients with SUD
- Students will be able to diagnose a patient with SUD
- Students will now when and how to use medical and psychosocial interventions in their clinical practice.

The intermediate outcomes are represented by the changes in practice that are expected to develop in Liberia. The intermediate outcomes are:

- Collect epidemiological data about SUDs in Liberia through patient encounters.

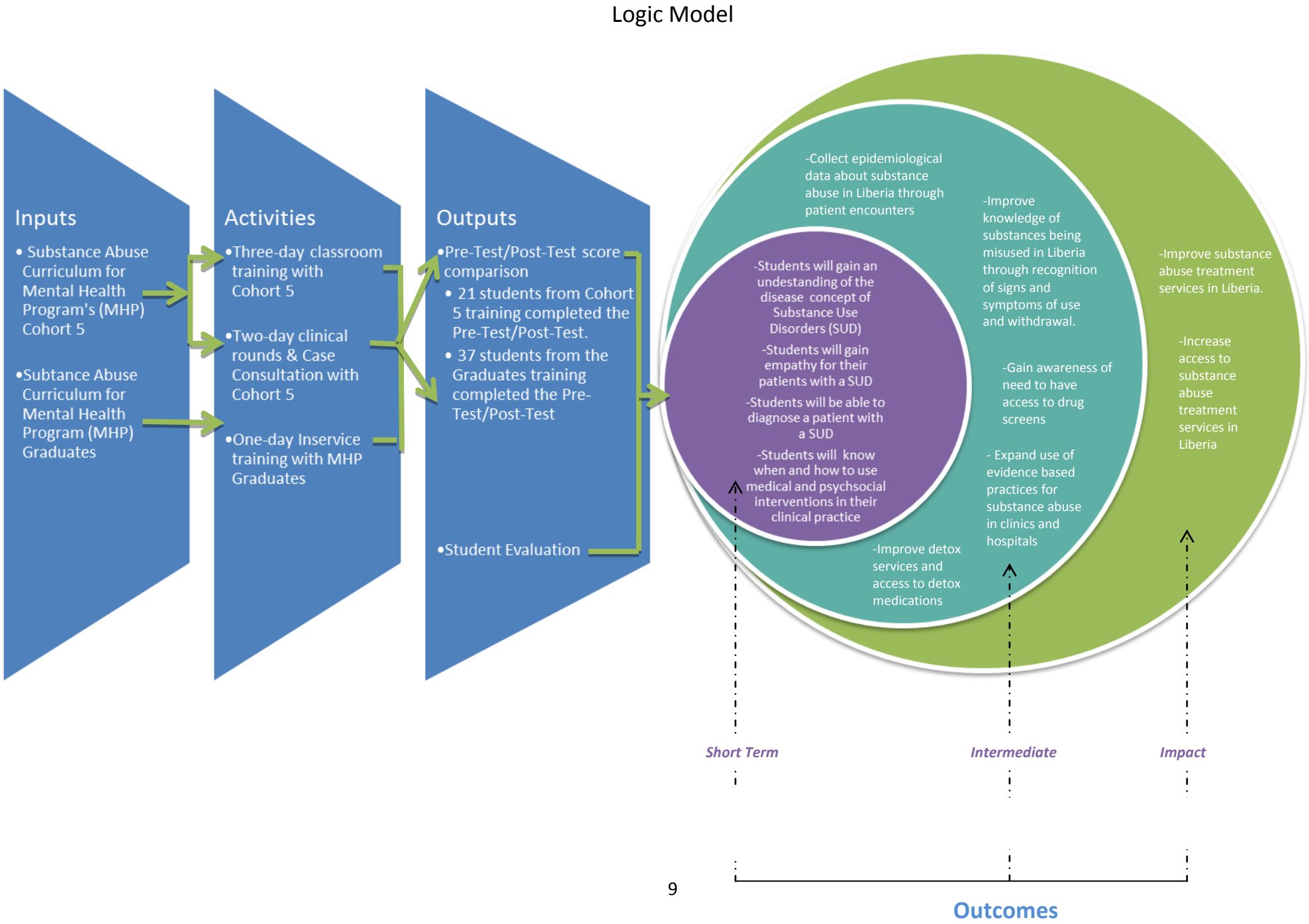
- Improved knowledge of substances being misused in Liberia through recognition of signs and symptoms of use and withdrawal.
- Gain awareness of the need to have access to drug screens.
- Expand use of evidence-based practices for SUD in clinics and hospitals
- Improve detox services and access to detox medications

The long-term impact outcomes of this training are represented in the improved services. These include:

- Improved substance abuse treatment services in Liberia
- Increased access to substance abuse treatment services in Liberia

Figure 1

A Pre and Post Test Evaluation of a Substance Use Disorder Training Curriculum Used in Training Students of The Carter Center's Mental Health Program in Liberia



Evaluation

Due to this curriculum being taught in two different formats (i.e. three days of classroom instruction and clinical rounds vs one day in-service) it was decided that a pre-test/post-test evaluation along with a qualitative course evaluation would be used to compare the two methods used to teach the course curriculum. The purpose of the evaluation was to determine if one format was more effective than the in other in providing the students with the End of Course Competencies that were expected to be obtained by both formats of teaching the curriculum. In addition, qualitative feedback from both groups of students would provide guidance as to what they believe were the strengths and weaknesses of the format used to teach them.

CHAPTER 2- LITERATURE REVIEW

Review of Literature related to outcomes of the evaluation

Mental, neurological, and substance use (MNS) disorders are highly prevalent and are responsible for 14% of the global burden of disease expressed in disability-adjusted life years (DALYs). The resources that have been provided in countries to tackle the huge burden are insufficient, inequitably distributed, and inefficiently used, which results in a large majority of people with these disorders receiving no care at all. Even when available, treatment and care often is neither evidence-based nor of high quality, the result is a large treatment gap, with more than 75% in many Low- And Middle-Income Countries (LAMIC) (Dua, Corrado, Clark, Fleischmann, Poznyak, van Ommeren, Taghi, Ayuso-Mateos, Birbeck, Freeman, Giannakopoulos, Levav, , 2011).

The World Health Organization (WHO) launched the Mental Health Gap Action Programme (mhGAP) to scale up services for people with MNS disorders and reduce this treatment gap, especially in LAMIC. One essential component of mhGAP is to develop management recommendations (guidelines) for MNS disorders identified as conditions of high priority. The priority conditions included are depression, psychosis, bipolar disorders, epilepsy, developmental and behavioural disorders in children and adolescents, dementia, alcohol use disorders, drug use disorders, and self-harm/suicide (Dua, et.al., 2011). According to the mhGAP intervention guidelines, there is a widely shared but mistaken idea that all mental health interventions are sophisticated and can only be delivered by highly specialized staff. Research in recent years has demonstrated the feasibility of delivery of pharmacological and psychosocial interventions in non-specialized health-care settings (World Health Organization, 2010). This recent research

is the basis for The Carter Center MHP. The MHP is providing training to general practitioners (nurses and physician assistants) who will primarily be working in non-specialized health-care settings (health centers, and hospitals). The substance use disorder curriculum being evaluated in this project is a module of the MHP and thus based on this same principle.

As identified by the mhGAP substance use disorders (both alcohol and drug) are priority conditions to be addressed in the scaling up of mental health services. In addition, the mhGAP intervention guide includes guidelines for assessing co-morbidities or two disorders being present at the same time. It is particularly common for someone to have co-morbidities of mental illness and substance abuse. This is commonly termed as co-occurring disorders. Although there is no epidemiologic data about co-occurring disorders in Liberia, there is a great deal of evidence in the literature from other countries to support that co-occurring substance use disorder and mental illness are common. For example according to the National Survey on Drug Use and Health (NSDUH) conducted in the United States by the Substance Abuse and Mental Health Services Administration (SAMHSA) 2.8 million people with serious mental illness and 8.4 million with any mental illness have a co-occurring substance use disorder. (Substance Abuse and Mental Health Services Administration, 2013) (As mentioned in the introduction current data indicates that 40 percent of Liberia's population experience PTSD and among ex-combatants 40 percent experience symptoms of major depressive disorder (MDD). Based on this data one would expect that co-occurring disorders would occur frequently as well.

In the United States studies indicate that co-occurring disorders are common and should to be treated at the same time. The NSDUH reports that among the 43.7 million adults aged 18 or older in 2012 with any mental illness (AMI) in the past year, 19.2 percent (8.4 million adults) met criteria for substance dependence or abuse. In comparison, 6.4 percent of adults who did not have mental illness in the past year (12.3 million adults) met criteria for a substance use disorder (Substance Abuse and Mental Health Services Administration, 2013). In addition, among the adults with any mental illness and a substance use disorder, 44 percent received substance use treatment or mental health treatment in the past year, 13.5 percent received both mental health treatment and substance use treatment, and 37.6 percent did not receive any treatment. Based on this information it is vital that those treating mental illness in Liberia also know how to treat substance use disorders, and vice versa. The Carter Center MHP recognized this and as a result decided to include a substance use disorder training module as part of their MHP.

As previously mentioned 40 percent of Liberians experience PTSD making this perhaps the most prevalent mental illness in the country, and there is a great deal of correlation between PTSD and substance use disorder as co-occurring disorders. The prevalence of current PTSD (*Diagnostic and Statistical Manual of Mental Disorders*, Fourth Edition; DSM-IV) in SUD patients is around three times higher than in the general population, ranging from 25.3 to 49 percent (Geilen, Havermans, Tekelenburg, & Jansen, 2012). There are several hypotheses about why there is such a strong correlation between PTSD and SUD. One of the hypotheses is the "self-medication hypothesis" which posits that people with PTSD use substances to self-medicate, and it is thought that this self-

medication helps them manage their trauma-related symptoms. Another hypothesis is that people with SUD are at higher risk for developing PTSD due to increased vulnerability to interpersonal violence (e.g., sexual assault) that ensues from their at-risk, substance-abusing lifestyle. There is also the "susceptibility hypothesis" which suggests that individuals with SUDs have an increased vulnerability to developing PTSD due to genetic or psychological impairments that result from substance use. Finally there is the "cross-sensitization hypothesis" this suggests that stress (i.e., trauma) primes the reward system such that when an individual uses substances of abuse, he or she becomes more susceptible to the rewarding effects of the drug(s), increasing the likelihood of the development of SUDs (Davis, Jovanovic, Norrholm, Glover, Swanson, Spann, Bradley, 2013). Further research of these hypotheses is needed to fully understand the relationship between PTSD and SUD and to provide more evidence-based interventions to treat these co-occurring disorders. However, like most co-occurring disorders what is known is that addressing both issues in treatment is necessary; thus the need for the substance use disorder curriculum as part of the Carter Center MHP.

The goals of this substance use disorder curriculum are to provide training to students of the MHP so that they are able to provide evidenced-based treatment for those with substance use disorders and more commonly those with co-occurring disorders. In addition, as they are able to recognize and properly diagnose those with substance use disorders (whether presenting as a single disorder or a co-occurring disorder) more data will be gathered about the prevalence of substance use disorders in Liberia. This will ultimately have the impact of improving substance abuse treatment in Liberia, and increase access to substance use treatment in Liberia.

In addition to the frequency of co-occurring disorders of mental illness and substance abuse, general use of illicit drugs occurs at greater frequency among those with a mental illness. NSDUH indicates that the use of illicit drugs in the past year was more likely among adults aged 18 or older with past year any mental illness (AMI) (26.7 percent) than it was among adults who did not have mental illness in the past year (13.2 percent). This pattern was similar for most specific types of illicit drug use, including the use of marijuana, cocaine, hallucinogens, inhalants, or heroin and the nonmedical use of prescription-type psychotherapeutics (Substance Abuse and Mental Health Services Administration, 2013). In Liberia there is no access to drug screening to determine the type of substances that are being abused, but based on the results of the above NSDUH survey there is likely the same level of drug use among those with mental illness in Liberia or higher given the prevalence of co-occurring disorders in Liberia particularly PTSD. As a result of teaching the substance use disorder curriculum the importance of having access to drug screening for a couple of reasons emerged as a finding.

The mhGAP intervention guide includes the following guidelines related to alcohol and drug abuse in scaling up mental health services: screening and brief interventions, management of withdrawal from alcohol and drugs, relapse prevention, psychosocial interventions, harm reduction techniques, and the role of mutual help groups (World Health Organizations, 2010). The substance abuse curriculum being evaluated for this project includes all of these guidelines, but these guidelines also highlight the importance of drug screening. This is particularly important for the guideline of managing withdrawal for alcohol and drugs. In the curriculum management of withdrawal was taught based on physical symptoms that a patient will present with,

but drug screening would improve accuracy of managing withdrawal symptoms. In addition, knowledge of substances being abused may impact the psychosocial interventions that a clinician may use with a patient. The lack of access to drug screens is a finding that is particular to LAMICs and an important finding in the implementation of substance use disorder training in Liberia.

Although research in the field of mental, neurological and substance use disorders has significantly advanced in recent years, most of these advancements have been driven by the needs of health systems in the richest countries. To appropriately translate research findings into clinical and public health practices, it is critical to accelerate implementation research to evaluate interventions beyond the controlled conditions of research settings, and in the type of populations that suffer the largest proportion of the global burden of morbidity and mortality (Dua, et.al, 2011). This evaluation will contribute to the body of literature about the implementation of substance use disorder interventions particularly in LAMICs that have high incidences of mental illness as a result of trauma.

Review of Literature related to evaluation methods

A commonly used method for evaluating training curriculums is a pre/post-test evaluation. This is seen in the literature across varied disciplines, and quite common in healthcare.

The pre/post test evaluations conducted for many different curriculums primarily the same basic methods which include a pre-test given prior to the curriculum being taught, and the same test given as a post-test after the curriculum is taught. A comparison of the pre-test and post-test scores is done using a paired-sample t-test.

There are some differences in these studies. For example in an evaluation of a suicide prevention curriculum to train SUD treatment providers in the Veterans Administration (VA) the following method was used: The investigative team at the VA VISN 2 Center of Excellence for Suicide Prevention (CoE) mailed Suicide Prevention Coordinator (SPC) volunteers a packet containing instructions, the Treatment Improvement Protocol (TIP) 50 video, a set of TIP 50 manuals, and pre-training and post-training questionnaires. The SPCs were asked to deliver a training lasting 2 hours or less to a group of substance abuse providers in their local area. These trainings were to consist of the following: 1) handing out the TIP 50 manual, 2) administering pre-training questionnaires, 3) showing the TIP 50 video, 4) facilitating a brief discussion of the video (about 10–15 minutes), and 5) administering post-test questionnaires. Following the training the SPCs collected the questionnaires and mailed them to the CoE. Two months following the training, the SPCs were mailed a packet of follow-up questionnaires to administer to individuals who took part in the original training. As needed, CoE staff provided e-mail and phone reminders on a predetermined schedule to SPCs to complete the follow-ups. SPCs mailed the completed follow-ups to the CoE (Journal for Substance Abuse Treatment, 2013). This study used a follow-up two months post training as an additional evaluative tool to the pre-test and post-test questionnaires. In another study that was done to evaluate the effectiveness of current teaching methods of Cardiology rather than testing the same group prior to taking the cardiology course and post taking the cardiology course this study used two different groups of students to study. A group that had not taken the course as the pre-test group and a group that had taken the course as the post-test group. Here is a brief explanation of their sample groups: From the 177

students who participated, 59 students had already attended the Cardiology course (post-training group) while the other 118 students were randomly chosen from those who had not attended (pre-training group) so that 2 students would correspond to each one in the post-training group in terms of sex (equal distribution), age (24 +/-1 years), year of study (5^{th}) and year of entering Medical School (Hippokratia, 2013). A study more similar to the evaluation of this substance use disorder curriculum is a study that was designed to evaluate a pain a curriculum for occupational therapist. During the academic years 2004 through 2009, 194 OT students were administered a test of pain knowledge and attitudes on the first and last day of a required class which focused on procedural reasoning. The results indicated significant ($p < 0.001$) improvement in test scores after participation in the class. Whereas only 35% of students met the minimum "adequate" standard for pain knowledge at pre-test, 92% of students met this standard at post-test (Disability and Rehabilitation, 2013). This study looks at the scores of the same group of students before and after the curriculum was taught which is similar to the evaluation of this project. However, in this project there are two groups being evaluated with two different teaching methods on the same curriculum. Both groups were given a pre-test prior to being taught the curriculum and a post-test after being taught the curriculum which again is similar to the pain curriculum study noted above. Despite some of the differences noted in these studies what is of importance is that pre/post-test evaluations are well a documented method for evaluating training curriculums.

One additional evaluation technique used in this project is the use of a qualitative evaluation of the curriculum completed by each student. This qualitative evaluation was drawn from similar evaluations that are frequently asked to be completed by

professionals attending training for continuing education and in classrooms. A review of the literature discovered a method of evaluation of continuing education courses that includes many of the topics addressed in the qualitative evaluation used in this project as well as the pre/post-test evaluation of this project.

One study is the Evaluation of Continuing Professional Development Program for Family Physicians. This was a study to evaluate the King Saud University Continuing Professional Development (CPD) Program for Family Physicians in relation to the Convenience, Relevance, Individualization, Self-Assessment, Interest, Speculation and Systematic (CRISIS) criteria (Pakistan Journal of Medical Sciences, 2013). In 1982, at the Association for Medical Education in Europe/Association for the Study of Medical Education meeting in Cambridge, the CRISIS criteria were first described by R. M. Harden. CRISIS is an acronym for seven criteria which contribute to the effectiveness of Continuing Medical Education (CME).

- Convenience – makes voluntary participation easy.
- Relevance – reflects the user's day-to-day role in medical practice.
- Individualization – allows learners a say in what is learnt and to adapt the programme to their own needs.
- Self-assessment – encourages doctors to evaluate their understanding of subject and to remedy any gaps identified.
- Interest – arouses attention and encourages learners to participate in the program.
- Speculation – recognizes and grey areas in medicine

- Systematic - offers a planned program, with coverage of a whole subject or an identified part of it.

Since 1982, the CRISIS criteria have been widely applied in CME (Medical Education, 1992). The qualitative evaluation asks for students to answer questions on a Likert Scale. The questions were aimed to gather data of students assessment of much of the CRISIS criteria. A copy of the qualitative evaluation tool is included in the Appendix. Convenience was not considered because of the resource limitation in Liberia the students of the MHP program make many sacrifices to participate in the MHP and the in-services upon graduation. These sacrifices include things such as driving for fourteen hours and sleeping on the side of the road; however this is just a way of life in Liberia. The self-assessment tool of the CRISIS criteria suggests that participants have a tool that allows them to evaluate their competencies and understanding of the topic, and to remedy any gaps identified (Pakistan Journal of Medical Science, 2013). In this instance our pre-test/post-test questionnaire provides the MHP students with this information.

CHAPTER 3- METHODOLOGY

In the development of the substance use disorder curriculum for The Carter Center MHP it seemed important to determine if the project provided the MHP, the primary stakeholders, with the desired results. These desired results were to provide Cohort 5 and the Graduates with knowledge necessary to provide substance use disorder treatment services to their patients. A pre-test to determine their base knowledge of substance use disorders and a post-test to determine the knowledge gained after being taught the curriculum seemed to be best way to evaluate the effectiveness of the curriculum. In addition, to have Cohort 5 and the Graduates provide qualitative feedback about their thoughts about the curriculum would provide the MHP with important information about the strengths and limitations of the curriculum as well. An evaluation would also be important because as mentioned in the literature review it is critical to accelerate implementation research to evaluate interventions beyond the controlled conditions of research settings, and in the type of populations that suffer the largest proportion of the global burden of morbidity and mortality (Dua, et.al, 2011). Therefore while the primary intended user of this evaluation is The Carter Center MHP, it may also be useful for other organizations working to scale up global mental health services.

The Carter Center MHP was consulted on the plan to provide this evaluation and the supported this evaluation being conducted. They were provided pre-test and post-test questionnaire for approval prior to teaching. In addition this gave the MHP staff an opportunity to ensure that he wording of the questionnaire did not have confusing terminology for the participants because of the differences in phrasing of English in Liberia than phrasing of English in the United States. The evaluation that allowed the

students to provide qualitative feedback of the curriculum was actually the evaluation that the MHP staff uses with to evaluate all of their modules of the MHP.

Cohort 5 Evaluation Process

On the first day the first activity of our teaching the substance use disorder curriculum was to give Cohort 5 the pre-test. The pre-test was not a timed test. Cohort 5 students were given as much time as they needed to completed the test. The pre-test consisted of 20 questions that were developed by Dr. Harrison and Ms. Real. A copy of this test is provided in the Appendix. These questions were designed to test the students' knowledge of the subjects to be taught in the curriculum. Dr. Harrison and Ms. Real graded the pre-test the evening after the first day of class and provided the students feedback about the grades on the second day of class. It was reiterated to the students that it was expected that their grades would reflected their limited knowledge about substance use disorders and that this test only provided information about their baseline knowledge. Again the test consisted of 20 questions that were each worth 5 points for a possible total score of 100 on the test.

The curriculum was then taught to Cohort 5 over the course of 3 days of didactic education in a classroom on the campus of John F. Kennedy Hospital in Monrovia, Liberia. This is the classroom that had been used throughout the entire six months of the MHP. At the end of the 3 days of classroom instruction Cohort 5 was given the post-test. The post-test was the same 20 questions that were used in the pre-test, and they were graded in the same manner. As discussed in the introduction Cohort 5 was also provide with clinical rounds instruction. Ideally the post-test would have been given upon

completion of the clinical round instruction; however, do to the setting and logistics of how the clinical rounds were conducted this was not possible.

Upon completion of the post-test Cohort 5 was then asked to complete the qualitative evaluation. Again it would have been ideal if Cohort 5 was able to provide their qualitative feedback after the clinical rounds education, but due to constraints of the clinical rounds this was not possible.

Graduates Evaluation Process

The Graduates were given the pre-test and post-test as part of an in-service. The in-services was held at The Cape Hotel located Monrovia, Liberia. It was held in the event or meeting room of the hotel. The day began with the Graduates being provided breakfast. They were given time to eat and socialize with one another. After breakfast the in-service began with the Graduates taking the pre-test. The pre-test consisted of 20 questions; however, some of the 20 questions were changed from the 20 questions that were given to Cohort 5. Some of the questions were changed because, The Carter Center MHP staff had asked that a section of the curriculum include detoxification and medication assisted recovery. This request was made just prior to Dr. Harrison and Ms. Real leaving the United States for Liberia. There was not time to include questions on this topic with Cohort 5. However, it was an important part of the curriculum that needed to be evaluated in some way, and was included on the pre/post-test for the Graduates. A copy of this test is also provided in the Appendix.

The curriculum was taught to the Graduates of the course of 1 day of didactic education. However, the topics were covered a faster pace and discussion of topic with

the participants had to be limited. At the end of the day the Graduates were given the post-test. The post-test consisted of the same 20 questions that the Graduates were given in the pre-test.

Upon completion of the post-test the Graduates were asked to complete the qualitative evaluation.

Data Analysis

The pre-test/post-test scores for Cohort 5 were examined in several ways. The hypothesis of this analysis is that Cohort 5 will have a significant difference in their pre-test and post-test scores. First the scores were examined by overall score in the pre-test versus overall score in the post-test. In addition, the test consisted of questions in the following categories: characteristics of substance use disorders, assessment of substance use disorders, terminology associated with substance use disorders, interventions of substance use disorders, and diagnosis of substance use disorders. The test scores were also examined by scores in each of these categories. Each question was also examined by the percent of students that answered each question correctly. The final examination was a paired sample t-test between the overall pre-test and post-test scores for Cohort 5 to test the significance of the difference between these scores.

The pre-test/post-test scores for the Graduates were examined in the same way that the pre-test/post-test scores were examined for Cohort 5.

The hypothesis for the comparison of Cohort 5 and the Graduates scores is that Cohort 5 will show a greater improvement that the Graduates because there was more time spent teaching Cohort 5 than there was spent with the Graduates. A comparison of

the pre-test scores for the two groups was then completed for the overall scores as well as for each category of questions, and a comparison of the post-test scores for the two groups was then completed for overall score as well as for each category of questions. There was also a comparison of the improvement for both groups in the overall score and for each category of questions. Finally an independent sample t-test of the improvement of both groups was examined to determine if there is a significant difference in Cohort 5s' improvement scores from the Graduates' improvement scores.

The qualitative evaluation was analyzed for any trends in the Likert scale questions as well as any themes emerging in the narrative feedback.

Limitations and Delimitations

There are several limitations of this study. Perhaps the primary limitation is that the pre-test and the post-test for the two groups were different. As mentioned above some of the questions in the pre-test and post-test were changed for the Graduates group because there was not time to include test related to detoxification and medication assisted recovery for the test for Cohort 5. In addition the qualitative evaluations used for Cohort 5 and the Graduates were different. The Carter Center asked that we use their course evaluations, and they used different evaluations for each group. Another limitation was the clinical rounds education that Cohort 5 received was neither included in the pre/post-test evaluation for this group nor was included in their qualitative evaluation.

This study is limited in scope to include only current students and graduates of The Carter Center MHP who were taught the substance use disorder curriculum designed by Dr. Harrison and Ms. Real.

CHAPTER 4-RESULTS

In this chapter the findings of the data analysis will be reported. The findings will be broken down by analysis of the pre and post test results for Cohort 5 (the current class of the Carter Center MHP), the pre and post test results for the Graduates (graduates of the Carter Center MHP), the results from comparing the improvement scores of both groups, and the results of the qualitative evaluation.

Results of Pre and Post-Test Scores of Cohort 5

As previously described Cohort 5 was given the pre-test as the first activity of teaching the substance abuse curriculum through three days of in classroom teaching. The post-test was given at the end of the three days of classroom teaching. Two additional days of learning were provided to Cohort 5 in the form of clinical rounds; however there was not the ability to test the group at the end of the clinical rounds due to the logistics of how the clinical rounds were conducted.

Pre-Test Results for Cohort 5

The pre-test provided a baseline evaluation of the groups knowledge of substance use disorders including: characteristics of substance use disorders, assessment, terminology, interventions, and diagnosis. Below (**Table 1**) is the abbreviation used for each type of question that will be used in additional figures. The figure also includes the number of questions on the test for each category as well the percent of students that answered each category of questions correctly on the pre-test:

Table 1 – Pre-Test Breakdown of Questions by Category and Class Score for Cohort 5

		#of this type of question	% of class with correct answer by type of question
CHAR	Characteristics of Disease	7	57%
ASSMT	Assessment	6	37%
TERM	Terminology	2	36%
INT	Intervention	3	51%
DX	Diagnosis	2	33%

Table 2 includes each students' total score on the pre-test as well as each students score for each of the categories of questions:

Table 2 – Cohort 5 Pre-Test Scores by Total Percentage and Question Category

Name	TOTAL PERCENTAGE SCORE pre	CHAR SCORE pre	ASSMT SCORE pre	TERM SCORE pre	INT SCORE pre	DX SCORE pre
Student 1	35%	43%	17%	50%	67%	0%
Student 2	60%	71%	50%	50%	67%	50%
Student 3	50%	57%	67%	50%	33%	0%
Student 4	45%	71%	33%	0%	33%	50%
Student 5	60%	86%	33%	50%	67%	50%
Student 6	65%	86%	67%	50%	33%	50%
Student 7	35%	57%	17%	0%	33%	50%
Student 8	45%	71%	17%	50%	67%	0%
Student 9	45%	57%	50%	50%	33%	0%
Student 10	35%	43%	17%	50%	33%	50%
Student 11	40%	57%	33%	0%	33%	50%
Student 12	55%	43%	50%	50%	100%	50%
Student 13	50%	57%	33%	50%	67%	50%
Student 14	25%	43%	17%	0%	33%	0%
Student 15	40%	43%	33%	0%	67%	50%
Student 16	55%	57%	50%	50%	33%	100%
Student 17	50%	43%	50%	100%	33%	50%
Student 18	40%	43%	17%	100%	67%	0%
Student 19	45%	57%	67%	0%	33%	0%
Student 20	40%	57%	33%	0%	67%	0%
Student 21	40%	57%	17%	0%	67%	50%
TOTAL	**45%**	**57%**	**37%**	**36%**	**51%**	**33%**

Most notable from these figures is that all students had overall failing score. This indicates a limited understanding of substance use disorder prior to this training. The categories of characteristics of the disease and interventions are the areas that the students have the best understanding of substance use disorders as indicated by having the highest score on questions in these categories. This seems to point the fact that prior to this training the students were seeing substance use disorders and are able to identify it, and they are providing some interventions and have some basic understanding of providing interventions for people with substance use disorders.

Post-Test Results for Cohort 5

Tables 3 & 4 provide a similar analysis as the analysis in Tables **1 & 2**; however, **Tables 3 & 4** are the post-test scores for Cohort 5.

Table 3 - Post-Test Breakdown of Question Category and Class Score for Cohort 5

		#of this type of question	% of class with correct answer by type of question
CHAR	Characteristics of Disease	7	97%
ASSMT	Assessment	6	94%
TERM	Terminology	2	90%
INT	Intervention	3	79%
DX	Diagnosis	2	86%

Table 4 - Cohort 5 Post-Test Scores by Total Percentage and Question Category

Name	TOTAL PERCENTAGE SCORE post	CHAR SCORE post	ASSMT SCORE post	TERM SCORE post	INT SCORE post	DX SCORE post
Student 1	90%	100%	67%	100%	100%	100%
Student 2	100%	100%	100%	100%	100%	100%
Student 3	90%	100%	100%	100%	67%	50%
Student 4	90%	100%	100%	50%	67%	100%
Student 5	100%	100%	100%	100%	100%	100%
Student 6	100%	100%	100%	100%	100%	100%
Student 7	85%	100%	67%	50%	100%	100%
Student 8	95%	100%	100%	100%	100%	50%
Student 9	50%	43%	50%	100%	33%	50%
Student 10	80%	100%	83%	100%	67%	0%
Student 11	95%	100%	100%	100%	67%	100%
Student 12	100%	100%	100%	100%	100%	100%
Student 13	100%	100%	100%	100%	100%	100%
Student 14	95%	100%	100%	100%	67%	100%
Student 15	90%	100%	100%	50%	67%	100%
Student 16	100%	100%	100%	100%	100%	100%
Student 17	90%	100%	100%	100%	33%	100%
Student 18	95%	100%	100%	100%	100%	50%
Student 19	90%	86%	100%	100%	67%	100%
Student 20	90%	100%	100%	50%	67%	100%
Student 21	95%	100%	100%	100%	67%	100%
Total	91%	86%	83%	78%	74%	69%

In **Tables 3 & 4** the students continue score low in the same areas as in the post-test. This speaks to the need for continued learning about substance use disorders. This may be done through on-going supervision and additional trainings. The students' overall scores did improve dramatically.

Comparison of Pre-Test and Post-Test of Cohort 5

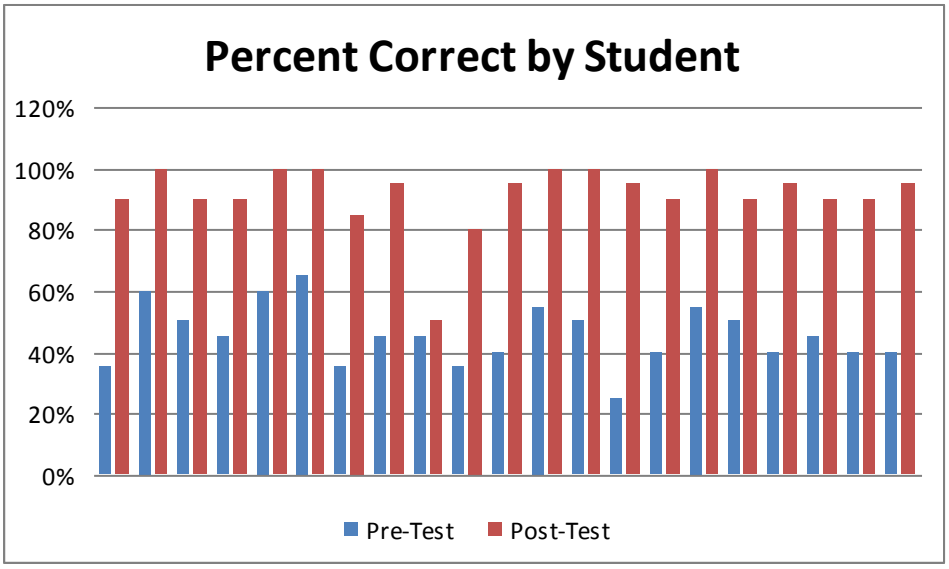
In comparing the results of the pre-test and post-test scores for Cohort 5 included below **Table 5** is a chart with the students' total pre-test, total post-test scores, and their percentage of improvement from pre-test to post-test.

Table 5 – Comparison of Cohort 5 Pre and Post-Test Scores

Name	TOTAL PERCENTAGE SCORE pre	TOTAL PERCENTAGE SCORE post	Average Score Improvement
SCORE			
Student 1	35%	90%	55
Student 2	60%	100%	40
Student 3	50%	90%	40
Student 4	45%	90%	45
Student 5	60%	100%	40
Student 6	65%	100%	35
Student 7	35%	85%	50
Student 8	45%	95%	50
Student 9	45%	50%	5
Student 10	35%	80%	45
Student 11	40%	95%	55
Student 12	55%	100%	45
Student 13	50%	100%	50
Student 14	25%	95%	70
Student 15	40%	90%	50
Student 16	55%	100%	45
Student 17	50%	90%	40
Student 18	40%	95%	55
Student 19	45%	90%	45
Student 20	40%	90%	50
Student 21	40%	95%	55
TOTAL	**45%**	91%	46

A comparison of the students' total scores is also provided in graph form below in **Figure 2**:

Figure 2 – Histogram of Cohort 5 Pre and Post-Test Scores

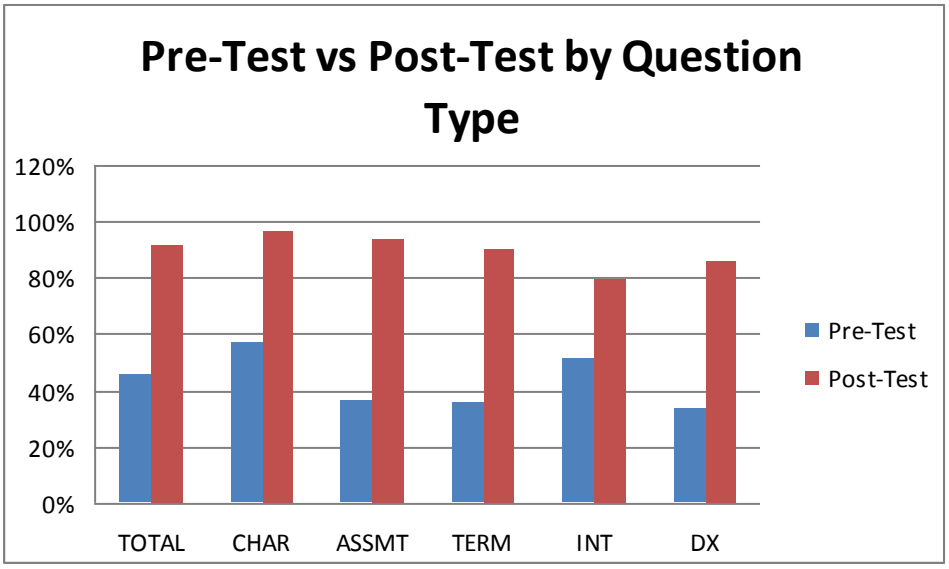


In addition, below is a comparison of Cohort 5's pre and post-test average total score and average score for each category of question. This is included in both table and graph formats (**Table 6 and Figure 3**).

Table 6 – Cohort 5 Pre and Post-Test Scores Breakdown by Question Category

	Pre-Test	Post-Test
TOTAL	45%	91%
CHAR	57%	97%
ASSMT	37%	94%
TERM	36%	90%
INT	51%	79%
DX	33%	86%

Figure 3 – Comparison of Cohort 5 Pre and Post Test Scores by Question Category



A final comparison of the pre and post-test was done in a paired sample t-test analysis to determine if the improvement of the scores was statistically significant. This analysis would rule out if the improvement in the students' scores was due chance. Results of the pre and post-test scores showed significant improvement, $t = 17.3$, (p-value < 0.001).

Results of Pre and Post-Test Scores of the Graduates

The in-service provided to the graduates of the Carter Center MHP was a one day training. The graduates were given the pre-test at the beginning of the in-service prior to any teaching of the substance abuse curriculum. At the very end of the day the graduates were given the post-test. A similar analysis was conducted for the Graduates pre and post-test scores this analysis is provided below.

Pre-Test Results of the Graduates

The pre-test provided a baseline evaluation of the groups knowledge of substance use disorders including: characteristics of substance use disorders, assessment, terminology, interventions, and diagnosis. Below (**Table 7**) is the number of questions on the test for each category as well the percent of students that answered each category of questions correctly on the pre-test:

Table 7 - Pre-Test Breakdown of Question Category and Class Score for Graduates

		#of this type of question	% of class with correct answer by type of question
CHAR	Characteristics of Disease	5	50%
ASSMT	Assessment	6	41%
TERM	Terminology	2	30%
INT	Intervention	5	77%
DX	Diagnosis	2	32%

Table 8 includes each students' total score on the pre-test as well as each students score fore each of the categories of questions:

Table 8 – **Graduates Pre-Test Scores by Total Percentage and Question Category**

Name	TOTAL PERCENTAGE SCORE pre	CHAR SCORE pre	ASSMT SCORE pre	TERM SCORE pre	INT SCORE pre	DX SCORE pre
Graduate 1	40%	40%	50%	0%	60%	0%
Graduate 2	50%	60%	50%	50%	60%	0%
Graduate 3	60%	80%	33%	50%	100%	0%
Graduate 4	45%	20%	50%	50%	60%	50%
Graduate 5	30%	20%	17%	50%	40%	0%
Graduate 6	55%	80%	50%	50%	80%	0%
Graduate 7	65%	60%	50%	100%	100%	50%
Graduate 8	40%	20%	50%	0%	80%	50%
Graduate 9	50%	60%	50%	0%	80%	0%
Graduate 10	40%	60%	33%	0%	40%	50%
Graduate 11	70%	60%	83%	50%	60%	50%
Graduate 12	50%	80%	50%	0%	80%	0%
Graduate 13	45%	60%	33%	50%	60%	50%
Graduate 14	35%	60%	17%	0%	80%	0%
Graduate 15	45%	60%	50%	50%	60%	0%
Graduate 16	50%	60%	50%	0%	80%	0%
Graduate 17	50%	60%	33%	50%	80%	0%
Graduate 18	50%	100%	33%	0%	80%	0%
Graduate 19	35%	40%	33%	0%	40%	0%
Graduate 20	55%	40%	67%	0%	80%	50%
Graduate 21	40%	60%	17%	50%	40%	0%
Graduate 22	35%	80%	17%	0%	40%	0%
Graduate 23	30%	60%	17%	0%	40%	0%
Graduate 24	65%	80%	67%	50%	80%	0%
Graduate 25	55%	60%	50%	0%	80%	50%
Graduate 26	30%	20%	17%	0%	40%	50%
Graduate 27	50%	80%	33%	0%	80%	0%
Graduate 28	45%	60%	33%	50%	80%	0%
Graduate 29	50%	40%	33%	50%	80%	50%
Graduate 30	55%	60%	33%	50%	80%	50%
Graduate 31	35%	40%	67%	0%	20%	0%
Graduate 32	45%	60%	17%	0%	100%	50%
Graduate 33	55%	80%	50%	100%	60%	0%
Graduate 34	55%	60%	33%	50%	80%	50%
Graduate 35	25%	20%	0%	50%	40%	50%
Graduate 36	75%	80%	83%	50%	100%	50%
Graduate 37	50%	40%	50%	50%	100%	0%
TOTAL	**47%**	**57%**	**41%**	**30%**	**69%**	**20%**

The graduates scored similar to Cohort 5 in terms of categories of questions that where they scored the highest. These scores indicated that the Graduates also are seeing people with substance use disorders prior to this training and are providing some interventions to them. The overall all score for the Graduates was also failing.

Post-Test Results for the Graduates

Tables 9 & 10 provide a similar analysis as the analysis in Tables **7 & 8**; however, **Tables 9 & 10** are the post-test scores for the Graduates.

Table 9 - Post-Test Breakdown of Question Category and Class Score for Graduates

		#of this type of question	% of class with correct answer by type of question
CHAR	Characteristics of Disease	5	88%
ASSMT	Assessment	6	80%
TERM	Terminology	2	77%
INT	Intervention	5	88%
DX	Diagnosis	2	88%

Table 10 - Graduates Post-Test Scores by Total Percentage and Question Category

Name	TOTAL PERCENTAGE SCORE post	CHAR SCORE post	ASSMT SCORE post	TERM SCORE post	INT SCORE post	DX SCORE post
Graduate 1	90%	100%	100%	100%	100%	0%
Graduate 2	85%	100%	67%	50%	100%	100%
Graduate 3	90%	100%	83%	100%	100%	50%
Graduate 4	100%	100%	100%	100%	100%	100%
Graduate 5	70%	60%	67%	100%	60%	50%
Graduate 6	100%	100%	100%	100%	100%	100%
Graduate 7	100%	100%	100%	100%	100%	100%
Graduate 8	60%	40%	67%	50%	100%	50%
Graduate 9	85%	100%	83%	100%	80%	50%
Graduate 10	75%	80%	67%	50%	80%	100%
Graduate 11	100%	100%	100%	100%	100%	100%
Graduate 12	90%	100%	83%	100%	100%	50%
Graduate 13	60%	40%	50%	100%	80%	100%
Graduate 14	75%	80%	67%	100%	100%	50%
Graduate 15	85%	100%	67%	100%	100%	50%
Graduate 16	75%	80%	83%	0%	80%	100%
Graduate 17	85%	80%	83%	50%	100%	100%
Graduate 18	90%	100%	83%	100%	100%	50%
Graduate 19	80%	100%	67%	50%	100%	50%
Graduate 20	75%	80%	83%	0%	80%	100%
Graduate 21	75%	80%	83%	0%	80%	100%
Graduate 22	70%	80%	33%	100%	80%	100%
Graduate 23	80%	80%	83%	50%	80%	100%
Graduate 24	90%	100%	83%	100%	80%	100%
Graduate 25	85%	60%	100%	100%	100%	50%
Graduate 26	75%	80%	83%	0%	80%	100%
Graduate 27	100%	100%	100%	100%	100%	100%
Graduate 28	100%	100%	100%	100%	100%	100%
Graduate 29	100%	100%	100%	100%	100%	100%
Graduate 30	95%	100%	83%	100%	100%	100%
Graduate 31	75%	80%	50%	100%	80%	100%
Graduate 32	95%	100%	83%	100%	100%	100%
Graduate 33	90%	100%	83%	100%	80%	100%
Graduate 34	90%	100%	67%	100%	100%	100%
Graduate 35	75%	80%	100%	0%	80%	50%
Graduate 36	100%	100%	100%	100%	100%	100%
Graduate 37	95%	100%	83%	100%	100%	100%
TOTAL	**81%**	**89%**	**82%**	**78%**	**92%**	**82%**

Comparison of Pre-Test and Post-Test of the Graduates

In comparing the results of the pre-test and post-test scores for the Graduates included below **Table 11** is a chart with the students' total pre-test, total post-test scores, and their percentage of improvement from pre-test to post-test.

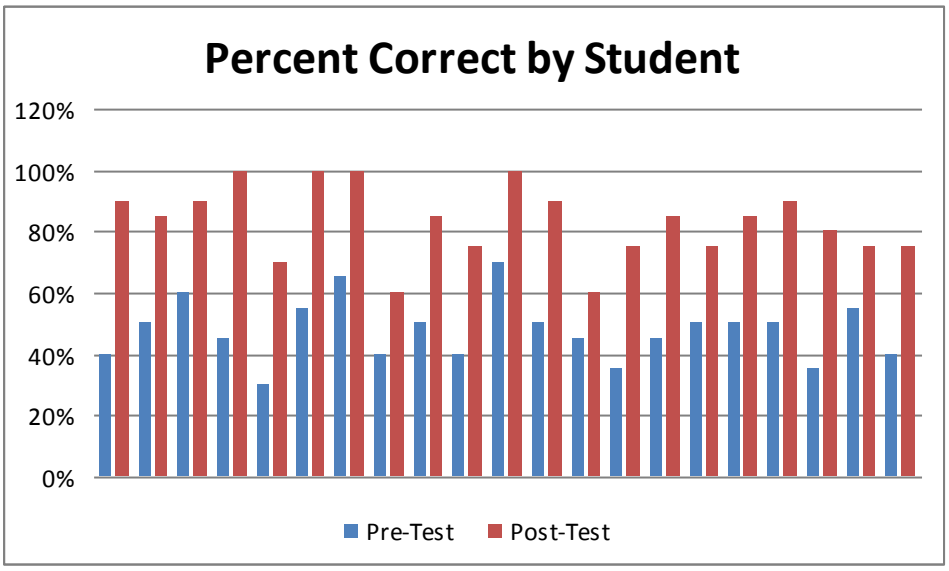
Table 11 - Comparison of Graduates Pre and Post-Test Scores

Name	TOTAL PERCENTAGE SCORE pre	TOTAL PERCENTAGE SCORE post	Average Score Improvement
Graduate 1	40%	90%	50
Graduate 2	50%	85%	35
Graduate 3	60%	90%	30
Graduate 4	45%	100%	55
Graduate 5	30%	70%	40
Graduate 6	55%	100%	45
Graduate 7	65%	100%	35
Graduate 8	40%	60%	20
Graduate 9	50%	85%	35
Graduate 10	40%	75%	35
Graduate 11	70%	100%	30
Graduate 12	50%	90%	40
Graduate 13	45%	60%	15
Graduate 14	35%	75%	40
Graduate 15	45%	85%	40
Graduate 16	50%	75%	25
Graduate 17	50%	85%	35
Graduate 18	50%	90%	40
Graduate 19	35%	80%	45
Graduate 20	55%	75%	20
Graduate 21	40%	75%	35
Graduate 22	35%	70%	35
Graduate 23	30%	80%	50
Graduate 24	65%	90%	25
Graduate 25	55%	85%	30
Graduate 26	30%	75%	45
Graduate 27	50%	100%	50
Graduate 28	45%	100%	55
Graduate 29	50%	100%	50
Graduate 30	55%	95%	40

Graduate 31	35%	75%	40
Graduate 32	45%	95%	50
Graduate 33	55%	90%	35
Graduate 34	55%	90%	35
Graduate 35	25%	75%	50
Graduate 36	75%	100%	25
Graduate 37	50%	95%	45
TOTAL	**47%**	**81%**	**34**

A comparison of the Graduates' total scores is also provided in graph form below in **Figure 4**:

Figure 4 – Histogram of Graduates Pre and Post Test Scores

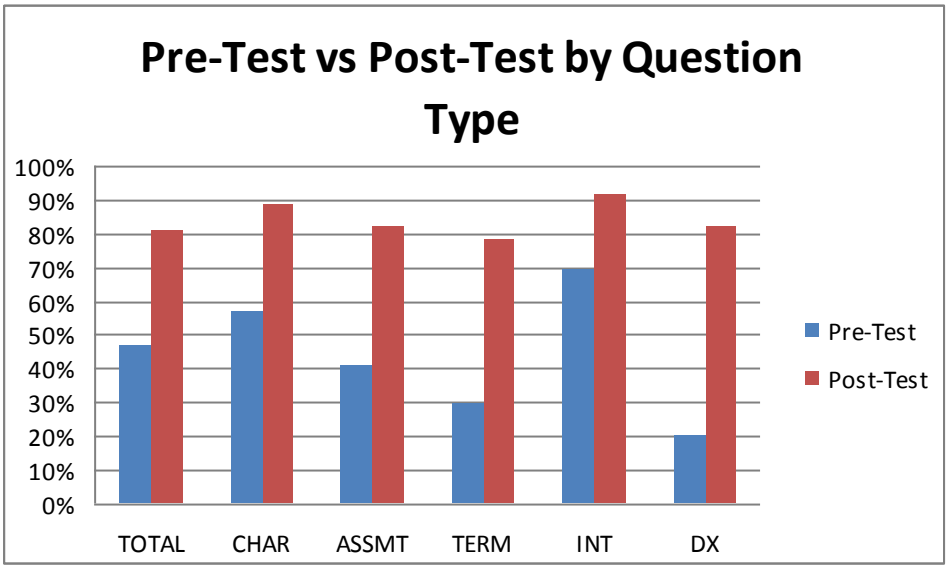


In addition, below is a comparison of Graduates pre and post-test average total score and average score for each category of question. This is included in both table and graph formats (**Table 12 and Figure 5**).

Table 12 - Graduates Pre and Post-Test Scores Breakdown by Question Category

	Pre-Test	Post-Test
TOTAL	47%	81%
CHAR	57%	89%
ASSMT	41%	82%
TERM	30%	78%
INT	69%	92%
DX	20%	82%

Figure 5 – Comparison of Graduates Pre and Post-Test Scores by Question Category



A final comparison of the pre and post-test was done in a paired sample t-test analysis to determine if the improvement of the scores was statistically significant. This analysis would rule out if the improvement in the graduates scores was due chance. Results of the pre and post-test scores showed significant improvement, $t = 23$, (p-value < 0.001).

Comparison of Improvement Scores from Cohort 5 and the Graduates

Figures 6 and 7 included below show a comparison of pre-test scores between Cohort 5 and the Graduates, and the post-test scores between Cohort 5 and the Graduates.

Figure 6 – Comparison of Cohort 5 and the Graduates Pre-Test Scores

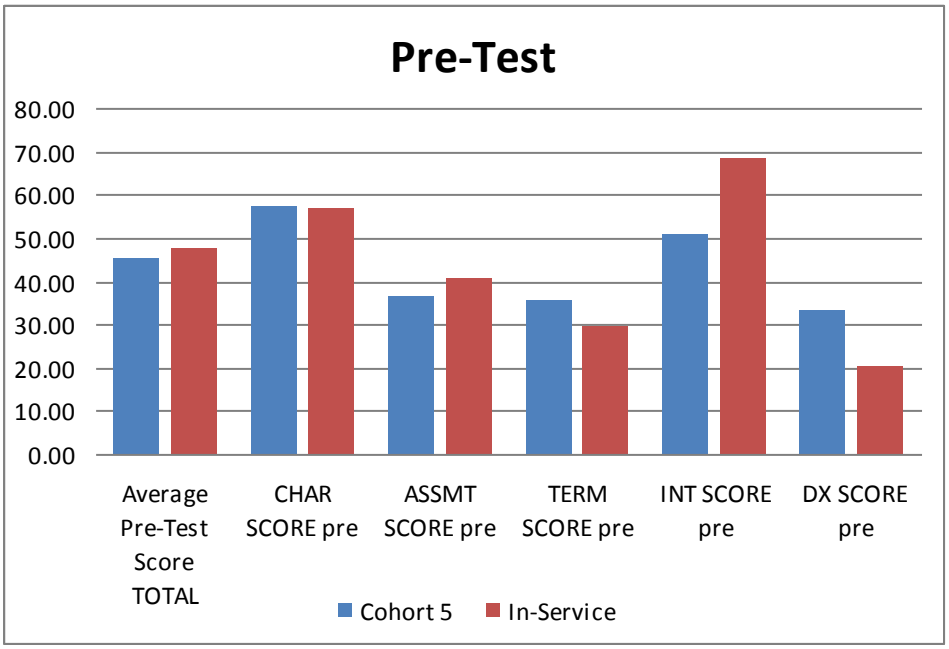
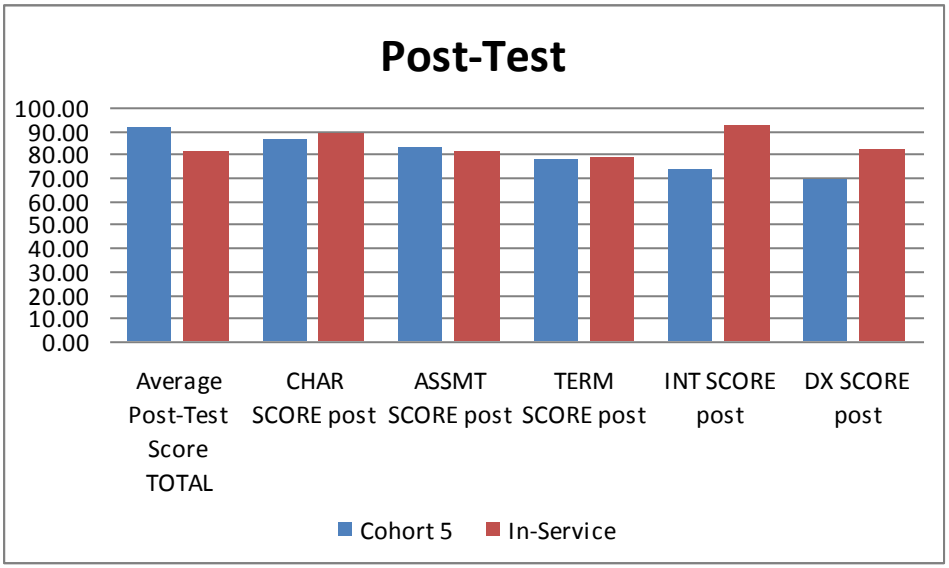


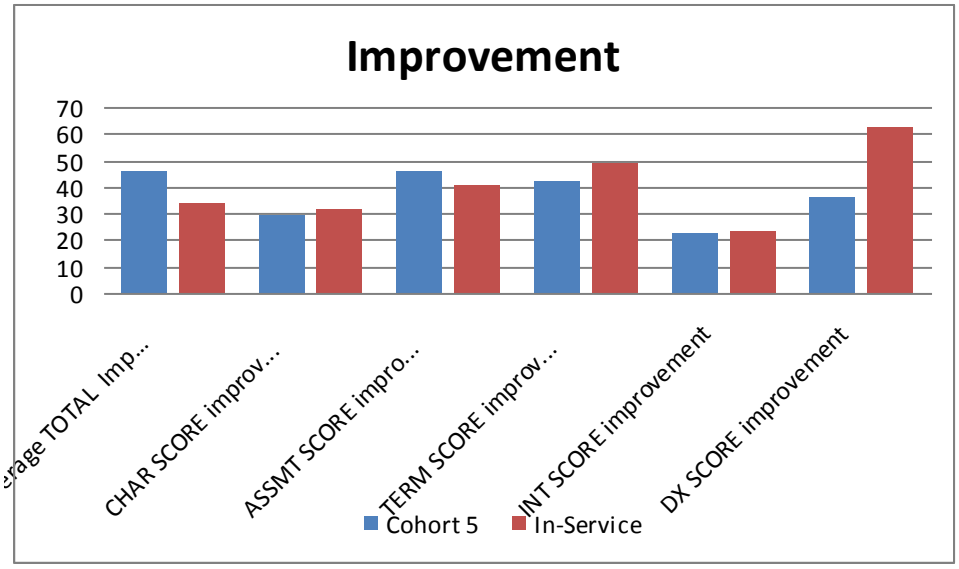
Figure 7 – Comparison of Cohort 5 and the Graduates Post-Test Scores



In looking at a comparison of the two groups pre-test scores what is most notable that the Graduates have more knowledge than Cohort 5 about interventions for substance use disorders. This may be attributed to the Graduates having more experience in the field than Cohort 5 and thus already practicing administering interventions to patients despite having a limited knowledge of substance use disorders. However, it is more likely related to the Graduates having five questions about interventions as compared to the Cohorts having only three. The Graduates have more opportunity to get questions in this category correct. Another notable observation in the pre-test is that Cohort 5 has more knowledge about diagnosis that the Graduates. The groups had the same number of questions in this category of questions (two). Perhaps, Cohort 5's greater score in this area is due to their currently being in class and active study of the Diagnostic and Statistics Manual IV.

There are several things notable about the groups' post-test scores. First is that the Graduates continue to score higher than the Cohorts in the category of interventions. Again this is most likely attributed to the Graduates having more questions on the test about this subject. Interestingly in the diagnosis category the Graduates scored higher on the post-test than Cohort 5. They seemed to have gained a great deal of knowledge in this category as a result of the training. Finally what are most notable is the groups' overall scores. Cohort 5 had a higher overall post-test score that the Graduates. The Graduates pre-test scores were initially higher than Cohort 5. Therefore the level of improvement was greater for Cohort 5 than for the Graduates. **Figure 8** below shows this improvement in graph form.

Figure 8



A final analysis was completed to determine if greater improvement score by Cohort 5 was due to chance. This was done by conducting an independent sample t-test of the improvement scores of both groups. Results of the t-test showed a significance in the improvement scores of Cohort 5, $t = 2.56$, (p-value < 0.015). This is most likely attributed to the amount of time spent on the substance use disorder curriculum with Cohort 5 as compared to the amount of time spent with the curriculum with the Graduates.

Results of the qualitative evaluations for Cohort 5 and the Graduates

Dr. Harrison and Ms. Real developed a qualitative evaluation to be used, but at the request of The Carter Center their evaluation was used. It was discovered after returning to the United States that Cohort 5 and the Graduates were given different qualitative evaluations. Results of both evaluations are provided and any inferences and that can be drawn from both evaluations are also noted.

Results of Cohort 5 evaluation

Fifteen of the 21 students of Cohort 5 completed the qualitative evaluation. The qualitative evaluation that was given to Cohort 5 consisted of nine questions. Two of which includes a yes or no answer and an opportunity for a narrative statement. Four of the questions the students were asked to measure the question on a Likert Scale, one question that asked the students to rate the training as a positive or negative experience, two questions that were yes or no questions, three additional questions where students are asked to provide narrative statements.

The four Likert scale questions had 3 levels of measurement which were Very Well or Helpful, Sufficient, or Not Very Well or Not Very Helpful. These four questions are listed below:

- How well do you understand the topic covered?
- Would you describe the instructor's overall explanation explicit?
- Will the information you received be helpful to you at the clinical site?
- How would you describe her presentation?

On all four of these questions 93 percent of the students answered these questions as Very well or Helpful, and 7 percent answered these questions as Sufficient.

The one question that could be answered as either positive or negative and the results of the students' answers to that question were:

- Would you describe the overall with the instructor as?

100 percent of the students answered this question as positive.

The two questions that could be answered as yes or no, and the results of the students' answers to that question are listed below:

- Did you feel supported in the learning process by your instructor?
- Were all the topic covered clear to you?

100 percent of the students answered yes to these questions.

The evaluation also included several questions that asked the students to write a narrative statement. These questions are:

- Describe how it will be helpful which was a follow up to question –Will the information you received be helpful to you at the clinical site?
- Why? Which was a follow up to the question – How would you describe her presentation?
- As a result of attending this course, one thing/things I will change during my clinical practice.
- If you have additional feedback please provide here.

The narrative statements that the students provided on this evaluation could be divided into five categories. These categories include:

- **Knowledge was gained from the training.**

There were a total of 10 narrative statements in this category. Here are some examples:

  - "I now have insite(sp) in how to deal with a substance abuse client."
  - "It helped me gain a clear understanding of the topics covered and other topics learned before. I am much prepared to do my clinicals."
  - "I will know how to manage and treat substance abuse, withdrawal, symptoms and know how to recognize the sign and symptoms when I see one."

- **The training will change how I work.**

There were a total of 10 narrative statements in this category. Here are some examples:

  - "I will have more patience in dealing with clients, and I will do more assessment."
  - "One thing I will change during my clinical practice always assess a client who have mental illness for substance abuse disorder in order to help them find a solution to their problem."
  - "I will treat all addiction clients as any other client seeking medical care."

- **Statements about the instructors teaching styles.**

There were a total of 11 narrative statements in this category. Here are some examples:

  - "Because she was clear in her teaching, active, and she always demonstrate what she says."
  - "She explain very well, give clear examples of what you see in clinical practice."
  - "Because she had good classroom management, good subject mastery, student-teacher relation."

- **Recommendation that the substance use disorder training is offered to others.**

There were 7 recommendations that this training be offered to other students.

  - **"**I would be very grateful if Dr. Harrison and Ms. Real can teach the next cohort to come."
  - **"**I recommend that she always come and she make her email available for consultation."

- "I will recommend that the next program she need to come and teach."

- **Recommendation that there be additional time devoted to the substance use disorder training.**

There were 6 recommendations that more time be allotted for this training.

- "I recommend that the course time be increase and allow the lecturer to come back for the course."
- "I wish we have additional time for this course"
- "The time was not adequate as the topic is very interesting and requires extension."

Based on the responses from the qualitative evaluation, Cohort 5 found the substance use disorder training to be helpful and a positive experience. It provided them with knowledge to treat people with substance use disorders, and changed the way they will work with clients with substance use disorders.

Results of the Graduates evaluation

The qualitative evaluation for the Graduates, as previously mentioned, is different from the evaluation that was given to Cohort 5. This evaluation included ten questions that required students to answer on a Likert scale including the following measures strongly agree, agree, disagree, and strongly disagree. A question about their overall satisfaction of the training also answered on a Likert scale including the following measures excellent, good, average, poor, and very poor, and two narrative questions. There were 41 total qualitative evaluations that were completed even though there were only 37 participants that completed the pre-test and post-test. The additional participants that completed the qualitative evaluations were not present at the time of the pre-test was

given so their post-test were not included in the pre-test/post-test evaluation. However, their qualitative evaluations are included.

The ten questions that were answered on a Likert scale from strongly agree to strongly disagree. The results for these questions are included in **Table 13.**

Table 13 – Graduates Qualitative Evaluation Likert Scale Questions and Score

Questions	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
This training met my expectations	71%	29%			
I will be able to apply the knowledge	73%	27%			
The training objectives for each topic were identified and followed	71%	27%	2%		
The content was organized and easy to follow	54%	41%	2%		
The materials distributed were pertinent and useful	34%	51%	10%	2%	
The trainer was knowledgeable	95%	5%			
The quality of the instruction was good	68%	32%			
The information shared will improve my clinical practice	85%	12%			
Class participation and interactions was encouraged	61%	39%			
Adequate time was provided for the questions and discussion	56%	41%		2%	

The question of overall satisfaction with the substance use disorder training was measured on a scale from excellent to very poor, and **Table 14** includes the results this question.

Table 14

Overall Rating of Training	Excellent	Good	Average	Poor	Very Poor
	76%	22%			

The two narrative questions included on the evaluation were:

- What aspects of the training could be improved?
- Other comments?

The comments that were provided for both of these questions could be divided in to several categories of responses. The categories include:

- **More time should have been allotted for the training**

There were 8 comments that addressed the topic of the need for more time allotted for the training. Below are some examples of comments related to time.

  - On the question of what aspects of the training could be improved some stated "Time".
  - "There need to be more time given"
  - "Time is the most aspect of the training it need to be 2 days"

- **The materials of the training should have been provided to each student in print.**

There were 12 comments requesting hard copies of the presentation be provided.

  - "Print out handouts"
  - "Ensure in subsequent trainings that hard copies of the presentation are available"
  - "P/S give handouts"

- **Recommend that the substance abuse training is offered to other students.**

There were 2 comments recommending that the substance abuse training is offered to other students.

  - "I recommend that you always have people like these two presenters to do our in-service trainings"
  - "I wish that other health workers will have the opportunity for each training."

The Graduates qualitative evaluation had several emerging themes. One being that the materials be provided in print for the participants, more time be allotted for the training, and the training needed to be more organized and made easier to follow.

Comparisons drawn from both qualitative evaluations

In both evaluations there was a question about the participants overall experience from the training. Cohort 5 was asked to rate the training experience as either positive or negative and 100% of those that completed the evaluation rated the training as positive. The Graduates were asked to rate the overall training experience on a Likert scale from excellent to very poor. Seventy-six percent rated the training as excellent and twenty percent rated the training as good. Based on these measurements both the groups had a good experience in the training they attended. There were questions in each evaluation about the instructors' presentation style and the clarity of the content of the training. Cohort 5 had two questions about content clarity, and so did the Graduates. Cohort 5 had a higher rating for these questions with 93 percent of the participants rating these questions as very well or very helpful. The Graduates rated

the questions from their evaluation a little lower with 71 percent and 54 percent as strongly agree. The lower scores for the Graduates may be related to the amount of time that was able to be spent on each topic.

Finally both groups had several comments about the desire to have more time allotted for this training. Cohort 5 had 3 days to cover the entire topic, and the Graduates only had one day. If many of the Cohort 5 class felt they needed more time then certainly one can understand the Graduates need for additional time.

The two qualitative evaluations were able to be compared for their similar feedback, but perhaps using the same evaluation would have elicited greater strength in comparison of the two methods of teaching the substance use disorder training.

CHAPTER 5-CONCLUSIONS, RECOMMENDATIONS AND IMPLICATIONS

The development of the substance use disorder curriculum, conducting the training, and completing the evaluation of the training provided continuity to all three activities that culminated into this thesis. This final chapter will provide a summary of the conclusions, recommendations, and implications of this work.

Conclusions from the Pre/Post Test Analysis

The pre/post-test analysis was conducted to determine if using one week of The Carter Center MHP to teach the current students about substance use disorder was more effective then teaching graduates of The Carter Center MHP through a one day in-service training. This analysis indicates that the hypothesis was correct; teaching students over three days is more effective. The results of independent t-test of the improvement scores of Cohort 5 and the Graduates show significant improvement for Cohort 5 over the Graduates. The Graduates started out with a higher score than Cohort 5, but their post-test scores were lower than Cohort 5 post-test scores. The conclusion would be that time did make a difference; three days of training vs one day of training is more effective. The three day training allowed for more time for questions and class discussion about topics. It also allowed for students to consider topics over time and bring questions back to the instructors after consideration and review (e.g follow-up questions the next day). Most importantly it allowed the instructors to spend more time covering each topic and review topics that students seem to be struggling with. The in-service for the Graduates gave limited time for class discussion, questions from students, as well as, less time for instructors to teach a topic and review as needed. The qualitative evaluations appears to

also support the hypothesis that time makes a significant impact in teaching the substance use disorder curriculum used in both of these trainings.

Conclusions of the Qualitative Evaluations

Although two different qualitative evaluations were used, one for Cohort 5 and one for the Graduates, there were some trends that could be found in both evaluations. The trends noted were about the time allotted for the training, making sure that students have access to printed material for the training (or perhaps electronic versions of the material), and clarity and organization of the content of the training. These three trends are interrelated.

Cohort 5 had three days of training and indicated that topics were very clear to them. Of the fifteen Cohort 5 students who completed the evaluation 100% of them felt the content was clear. However, the Graduates had one day of training. The Graduates indicated that the training was less clear. The Graduates evaluation asked about organization of the training and the ease in following the training. Their scores for this question were mixed including: 54 percent strongly agreed, 41 percent agreed, 2 percent were neutral. If there had been more time the training given to the Graduates likely would have been more easily followed, and the topics would have been clearer.

Both Cohort 5 and the Graduates evaluations had several participants make narrative statements asking that more be time allotted for the training. It is clear from both the pre/post-test evaluation and the qualitative evaluations that more time makes a difference. In addition based on the methods of teaching and training clinicians used in other countries in the field of SUD treatment, it is clear that both a three day training and a one day training provide only the very basic knowledge needed to begin to provide

effective treatment those suffering from this disorder. Ongoing clinical supervision and additional trainings will be important to continue the education of both Cohort 5 and the Graduates.

Finally due to some technical problems the Graduates were not provided handouts for their training. Many of their students included narratives statements about having been provided handouts would have improved the training. Cohort 5 was provided handouts so they had no narrative statements about this subject. However, this too may have contributed to the Graduates lower score about content clarity. Having printed material for notes and review can make a difference in helping participants understand the material being taught.

Recommendations

There are several recommendations that emerged from this training.

- The Carter Center MHP and others who are implementing training such as this should allow as much time as possible for the training.
- Printed material (or perhaps access to electronic materials) should be provided to participants.
- The Carter Center MHP used different qualitative evaluations for Cohort 5 and the Graduates. They may choose to use a different evaluation for Cohort classes than what they use for in-services. However, they may want to consider using one evaluation consistently for ease of comparing data from one training to another.
- The post-test for Cohort 5 were given at the end of the three days of classroom didactic lectures. Working out the logistics to have participants complete the

post-test after clinical rounds may have provided more accuracy of the results of the full training for Cohort 5.

Implications

Perhaps the most important implication of this study is that it provides information to those training clinicians in Liberia about the most effective training methods. Liberia has a significant need for trained clinicians who can address all mental health needs including SUD. Training clinicians and understanding effective methods of training will have short, intermediate and long-range implications for this country. In the short-term there are now 62 mental health clinicians that have been trained to assess, diagnose, and treat those with SUD. This has increased their knowledge to better treat those with SUD and increased their empathy for their clients with SUD. This training and evaluation will change the clinical practice of mental health clinicians treating SUD in Liberia. The clinicians who completed this training have been trained to use best practices for treating SUD, and they will likely influence others working in this field. In the long-run this training and evaluation will have an impact in improving the services for SUD in Liberia and increase access to SUD services in Liberia.

Another very important implication of conducting this training and evaluation is that it was discovered that clinicians do not have access to drug screens. There will be an increase in the awareness of need for drug screens as clinicians now understand the signs and symptoms of withdrawal and are working to manage those withdrawal symptoms. Hopefully this will lead to providing access to drug screening. The mhGAP intervention guidelines developed by the World Health Organization include the management of withdrawal symptoms of alcohol and drugs, and having accurate information about the

drugs that people are using is important to effectively manage withdrawal symptoms. In addition this is a finding that may be important for other LAMICs as access to drug screening is likely limited in other countries with limited resources and vulnerable population because of issues like trauma associated with war.

One final implication is the contribution this evaluation makes to the literature about implementation of training and building capacity of clinicians in LAMICs to be able to provide treatment for substance use disorders. The review of the literature indicates that there is a gap in these types of studies. As noted by Dua, et. al, although research in the field of mental, neurological and substance use disorders has significantly advanced in recent years, most of these advancements have been driven by the needs of health systems in the richest countries. To appropriately translate research findings into clinical and public health practices, it is critical to accelerate implementation research to evaluate interventions beyond the controlled conditions of research settings, and in the type of populations that suffer the largest proportion of the global burden of morbidity and mortality (Dua, et.al, 2011).

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APPENDICES

Appendix A:

Substance Use Disorder Training Modules for
The Liberia Initiative of The Carter Center

Introductions and Parking Lot: 15 to 20 minutes

Objective –

Students will get to know the background of the instructor and instructor will get to know the background of the students. Students will have an opportunity to express the topics they want discussed during the training.

Materials –

White board or Poster Paper and Easel

Procedures –

Instructor will start by introducing self to the students, and then instructor will ask the share with class the following information:

- Name
- What type of work do you do?
- What is the setting of your work?
- What do you want to learn about substance abuse?

Instructor will document the students' desires of what they hope to learn about substance abuse on the white board or poster paper. This will be the parking lot and will remain posted in the room during the in-service. Instructor will make sure that all of these topics are addressed before conclusion of the training.

World Health Organization Definition of Substance Abuse: 10 – 15 minutes

Objective –

Students will gain an understanding of how substance abuse is defined by the World Health Organization (WHO) and will be able to compare to Diagnostic and Statistics Manual V (DSM V).

Materials –

Handout that provides students the terminology and classification of substance abuse from WHO, and Power Point Presentation.

Procedure –

Instructor will conduct a lecture to review and provide further explanation of the terminology and classification of substance abuse from WHO. Lecture will be conducted with the use of a Power Point Presentation.

Epidemiology of Substance Abuse in Liberia: 3 – 5 minutes

Objective –

Students will have a frame of reference for the level of the problem of substance abuse in Liberia

Materials –

Power Point Presentation

Procedure –

Instructor will conduct a lecture to review and discuss the epidemiologic level of the problem of substance abuse in Liberia.

Co-Occuring Mental Health Disorders: 5 – 10 minutes

Objective –

Students will gain an understanding of how substance abuse and mental health problems interplay with one another, and the importance to address both issues to increase sobriety rates of patients.

Materials –

Power Point Presentation and handout

Procedure –

Instructor will conduct a lecture to review and discuss the interplay between substance abuse and mental health disorders.

DSM V Criteria – 15 – 20 minutes

Objective –

Students will gain an understanding of how substance abuse is defined by the Diagnostic and Statistics Manual V (DSM V) and will be able to compare to World Health Organization (WHO).
Materials –

Power Point Presentation and ?

Procedure –

Instructor will conduct a lecture to review the Biopsychosocial Model and Identification of the DSM V using a power point presentation.

Instructor will discuss will ask the entire group the following questions and encourage class discussion:

- What would you hear in your practice that would alert you that a person may meeting this criteria? What do patients say to you?

This discussion question is designed to help student integrate what they have learned thus far from the in-service and begin to apply how this information would be used in practice within the health care setting they work in.

<u>Disease Model, Addiction as a Chronic Medical Illness – 25 – 30 minutes</u>

Objective -

Students will learn that addiction is a disease, and view addiction as a chronic mental illness.

Materials:

Power Point Presentation

Procedures:

Instructor will conduct a lecture about etiology of addiction and how addiction affects the brain.

See lecture notes below:

All diseases have an etiology for example

> Type 2 diabetes develops when the body becomes resistant to insulin or when the pancreas stops producing enough insulin. Exactly why this

happens is unknown, although genetic predisposition, excess weight and inactivity seem to be contributing factors.

Addiction develops when some loses control over their drinking or use of drugs to point where it becomes harmful. Contributing factors to addiction include genetic predisposition, trauma, co-occurring mental health disorders, and environment.

How to factors listed above contribute to addiction?

Genetic Predisposition – This accounts 55% of the disease. If you have others in your family with addictions then you are more likely to become addicted. Research shows gender may be a factor in genetic predisposition as well. If you are a male and your father was addicted, you are 4 times more likely to develop an addiction.

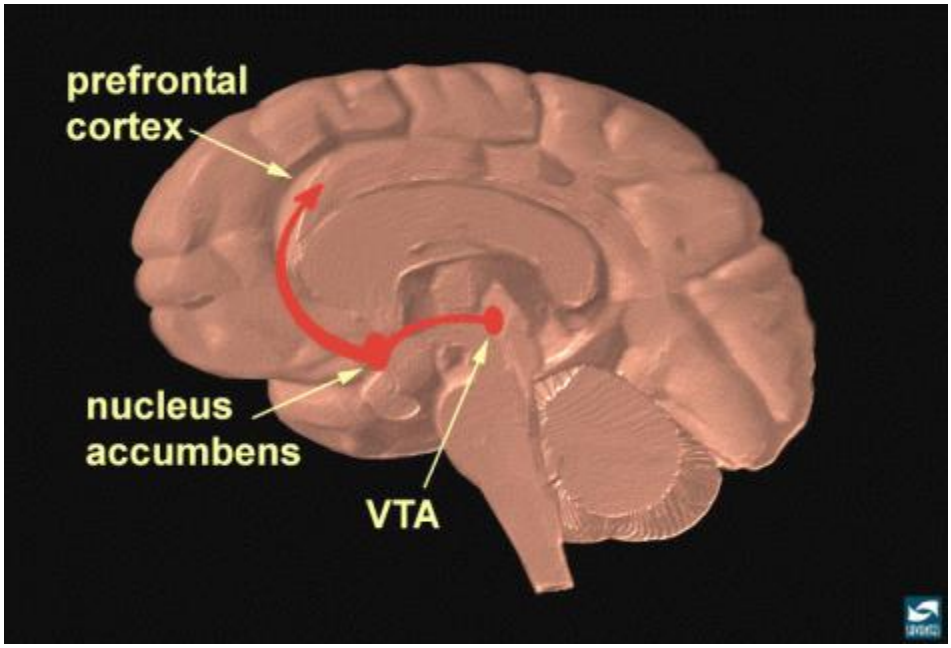
Trauma – Using substance is a way to cope with the anxiety associated with having experienced trauma, and people who have experience trauma are more like to develop an addiction. Trauma may include: adverse childhood experience (i.e. physical, emotional, sexual abuse or witness to violence in the home or neighborhood), military trauma, domestic violence, rape, trauma as a result of a disaster, etc.

Co-occurring Mental Health Disorders – People with mental health disorders are more likely to abuse substances as a way to cope with their mental illness

Environment - An environment with alcohol and drugs are more accessible and it is more accepted in the social environment then people are likely to develop an addiction.

Draw a side shot of a brain on the white board.

Draw a box to represent the nucleus accumbens and the ventral tegmental area. However, for the group you can refer to this as the Brain Reward Pathway Center. Example below:



Discuss that the Brain Reward Pathway Center is designed to drive those activities that we need to do to survive.

Ask the group – Can you identify the things we need to do to survive? As they identify them you can write on the board.

> They are eating, drinking water, having sex, and protecting or nurturing our children. Breathing is not include because if we were not breathing we would be alive to do activities to survive, and sleeping is not included because sleeping is a necessity that allows us to get up and do those things that we need to do to survive. Of course if we don't eat or drink we will not survive, and if we do not have sex to propagate the species we will not survive, and if we do not protect and nurture our children then if they all died the we as a species would not carry on. The protecting and nurturing is that thing that would drive a woman into a burning a building to save her child even though she could die.

As the group - When we eat, drink water, have sex, and protect our children our brain produces a chemical called a neurotransmitter can you guess what that chemical is?

> The chemical of course is dopamine. When we eat, drink water, have sex, and protect our children our brain produces natural amounts of dopamine. *However, alcohol and drugs when we use them produce pharmacological amounts of dopamine.*

When you went out drinking with your friends in high school or college the first time the next day you probably thought to yourself that was fun. We will have to do that again. "I like it"

Then as you continued to have nights like this you started to say "I love this" I am going to do this as often as I can. At this point you could probably say to yourself, I have a big exam tomorrow. I need to stay home rather than go out tonight. However, you can probably recall someone you knew who would have gone out anyway, and they may have failed out of school.

As the facilitator you may have a story of someone you knew that you can use as an example.

This person who couldn't stop is the person with the addiction. Their brain was "I need this". I need this to survive like I need to eat, drink water, have sex, and protect my children. And because this alcohol and drugs produce pharmacological amounts of dopamine this even the alcohol and drugs even take the place of eating, drinking water, having sex, and protecting our children.

As the facilitator you can also give the example of how this has been produced in labs with rats. Rats are put in a cage with plenty of food, water, other rats, and a pedal that when they push it they get cocaine. Eventually the rat does nothing but push the pedal until they pass out. When the rat wakes up it does not go eat or get water, it goes right back to the pedal.

So as you can see the brain reward pathway center has a lot of power. It drives us to do some of the most instinctual things that we do, but it is pretty stupid. We say it is stupid because it can talk to the prefrontal cortex part of the brain. The prefrontal cortex controls our logical thinking, emotions, problem solving, decision making, etc. However, the prefrontal cortex cannot talk back to the brain reward pathway center. This makes sense because why would we need to logically think of a reason not to do those things consistent with survival. This is why addicts do all the crazy things they do like (sell stuff out of your own home like your TV, rob your kids piggy bank, have someone hold your money so you don't spend it all, etc.)

Stages of Change Model : 25 – 30 minutes

Objective –

Students will gain some empathy for how difficult it is to change behavior. Students will learn about the stages of change model how to assess what stage of change a client may be in, and how that will impact the type of intervention one will use with a client.

Materials –

Dyad Exercise, Power Point Presentation, and Handout

Procedure –

Instructor will have each student pair off with another student. The instructor will have them think about behavior they have tried to change in their own lives. They will share with each about:

- any barriers to change they experienced
- set backs they had
- strategies that contributed to their success
- was the success long-term or how long did they stick with it
- was their one key event that contributed to their success or failure

Instructor will have the group come back together and share their observations from the exercise. This will lead to the lecture/discussion about the stages of change model. During the lecture instructor can invite students to share about clients they work with and the stage of change they see them in. Instructor can lead the students to think about how knowing this information may change their approach to working with a client.

Harm Reduction vs Abstinence Model : 10 – 15 minutes

Objective –

Students will learn what each model is. They will also learn how to use both models and when to use one model over the other.

Materials-

Power Point Presentation, video, and handout

Procedure –

Instructor will start the Power Point Presentation with the video this video link www.youtube.com/watch?**v**=IvdJ5OiBQiU . Instructor will conduct a lecture explain the Harm Reduction Model and the Abstinence Model as a way to counsel clients who are abusing substances. Instructor will provide examples of when each model may be used and how to use them.

Motivational Interviewing – 5 – 10 minutes

Objective –

Give students a general overview of motivational interviewing and encourage them to explore the technique further on their own.

Materials –

Power Point Presentation and Handout

Procedure –

Intructor will conduct a lecture giving a general overview of motivational interviewing. Instructor will provide the students with a few examples, and resources to learn more about motivational interviewing.

Managing Relapse in the Disease Model Framework – 20 – 30 minutes

Objective –

Students will gain an understanding about how relapse is a common occurrence with all chronic diseases, and how to counsel a client about a relapse from this perspective. This will be in contrast to a more traditional perspective that can be shameful to a client and prevent their return to the program after a relapse.

This lesson will also provide students will an understanding of the acronym HALT (Hungry, Angry, Lonely, and Tired) as well as a brief overview of Post-Acute Withdrawal symptoms and how they may play a role in relapse.

Materials –

Student provided examples of clients who have relapsed

Procedure –

Instructor will have students share examples of a typical relapse of one of their clients and instructor will encourage a discussion with the class about handling this relapse to reduce shame for client and make changes that will support a return to and continued sobriety.

Developing a Biopsychosocial Relapse Prevention Plan – 1 to 1.5 hours

Objective –

Students will learn how to develop a relapse prevention plan so that they would be able to assist a client in developing a relapse prevention plan.

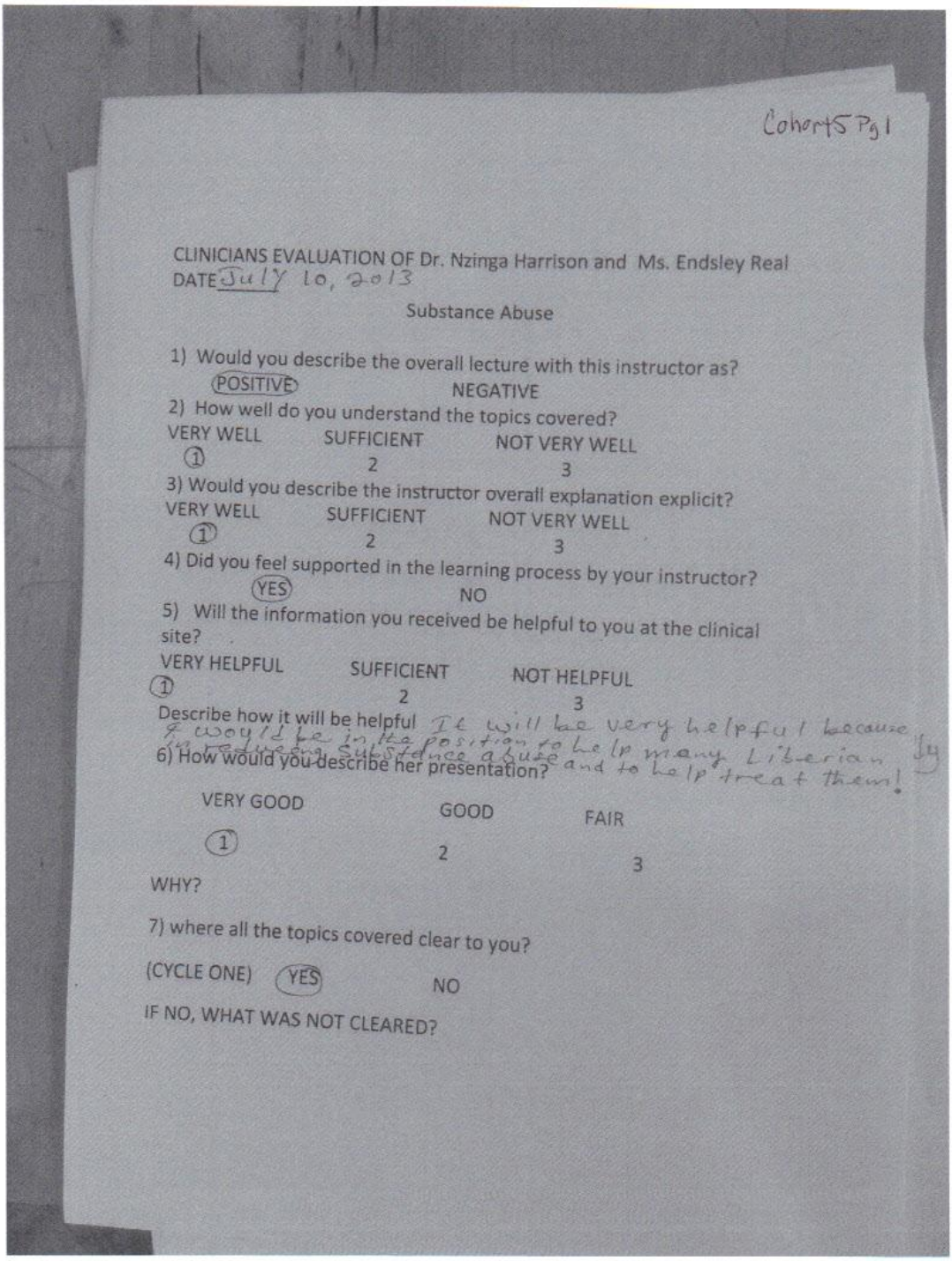
Materials –

Relapse Prevention Workbook

Procedure –

Instructor will guide the class through a relapse prevention plan. The instructor will have the students spend some independent time to develop a relapse prevention plan based a current or past client. Instructor will lead a group discussion regarding students' questions about relapse prevention plans.

Appendix B:



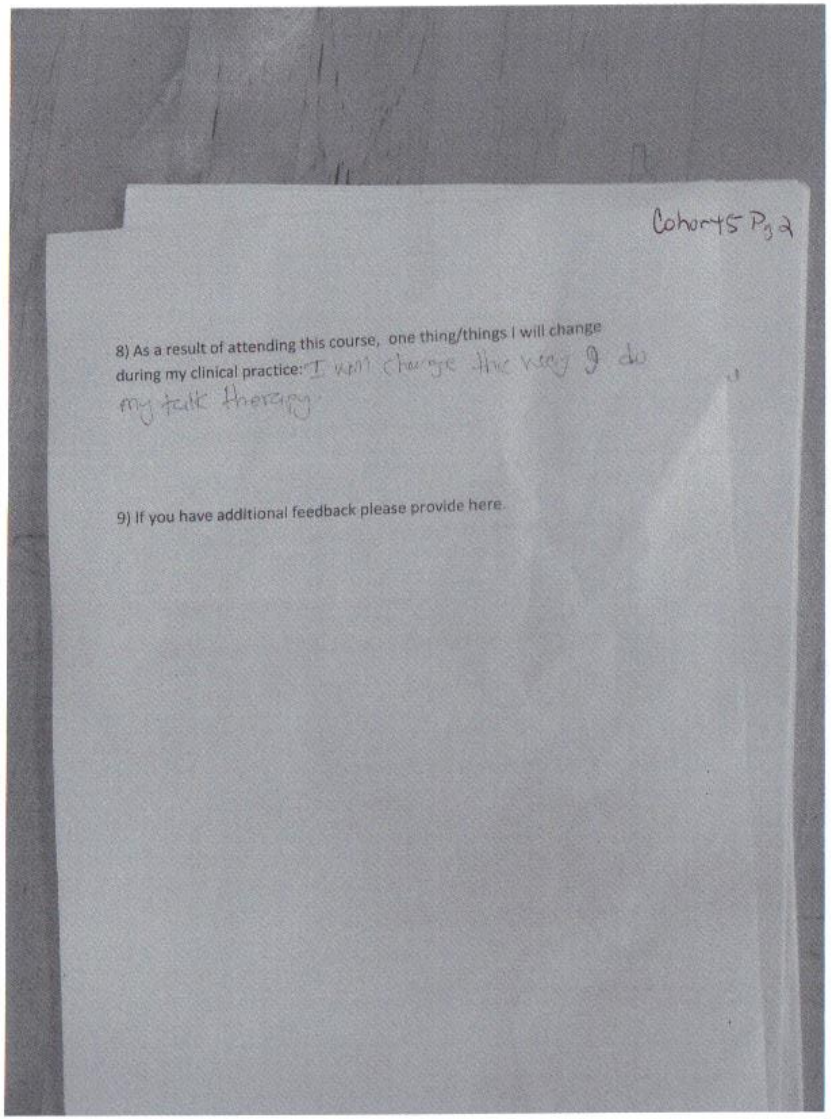
Cohort5 Pg1

CLINICIANS EVALUATION OF Dr. Nzinga Harrison and Ms. Endsley Real
DATE July 10, 2013

Substance Abuse

1) Would you describe the overall lecture with this instructor as?
(POSITIVE) NEGATIVE
2) How well do you understand the topics covered?
VERY WELL SUFFICIENT NOT VERY WELL
(1) 2 3
3) Would you describe the instructor overall explanation explicit?
VERY WELL SUFFICIENT NOT VERY WELL
(1) 2 3
4) Did you feel supported in the learning process by your instructor?
(YES) NO
5) Will the information you received be helpful to you at the clinical site?
VERY HELPFUL SUFFICIENT NOT HELPFUL
(1) 2 3
Describe how it will be helpful It will be very helpful because I would be in the position to help many Liberian ... Substance abuse and to help treat them! Jy
6) How would you describe her presentation?
VERY GOOD GOOD FAIR
(1) 2 3
WHY?

7) where all the topics covered clear to you?
(CYCLE ONE) (YES) NO
IF NO, WHAT WAS NOT CLEARED?

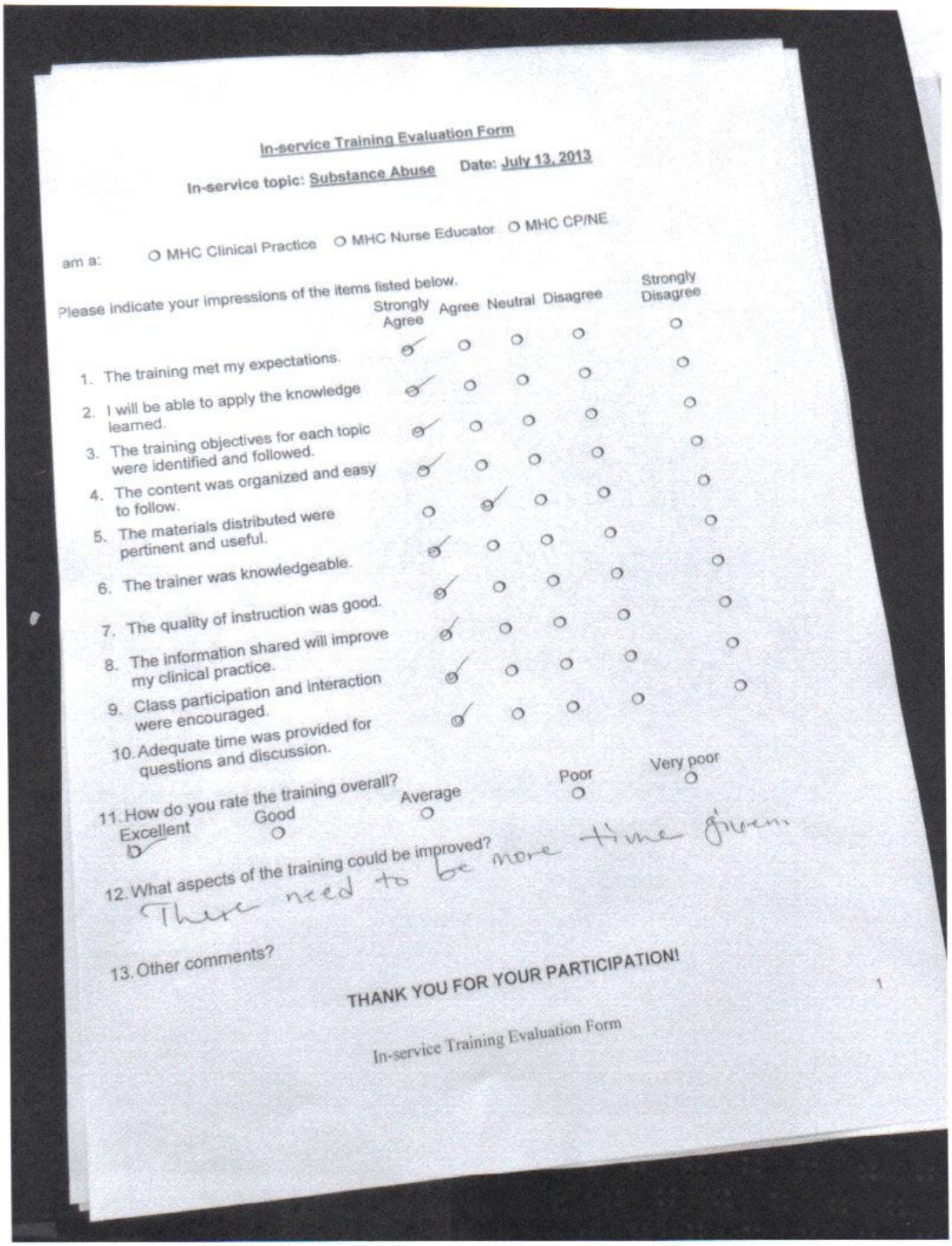


Cohort 5 Pg 2

8) As a result of attending this course, one thing/things I will change during my clinical practice: I will change the way I do my talk therapy.

9) If you have additional feedback please provide here.

Appendix C:



In-service Training Evaluation Form

In-service topic: Substance Abuse Date: July 13, 2013

I am a: ○ MHC Clinical Practice ○ MHC Nurse Educator ○ MHC CP/NE

Please indicate your impressions of the items listed below.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1. The training met my expectations.	✓	○	○	○	○
2. I will be able to apply the knowledge learned.	✓	○	○	○	○
3. The training objectives for each topic were identified and followed.	✓	○	○	○	○
4. The content was organized and easy to follow.	✓	○	○	○	○
5. The materials distributed were pertinent and useful.	○	✓	○	○	○
6. The trainer was knowledgeable.	✓	○	○	○	○
7. The quality of instruction was good.	✓	○	○	○	○
8. The information shared will improve my clinical practice.	✓	○	○	○	○
9. Class participation and interaction were encouraged.	✓	○	○	○	○
10. Adequate time was provided for questions and discussion.	✓	○	○	○	○

11. How do you rate the training overall?
Excellent ✓ Good ○ Average ○ Poor ○ Very poor ○

12. What aspects of the training could be improved?
There need to be more time given.

13. Other comments?

THANK YOU FOR YOUR PARTICIPATION!

1

In-service Training Evaluation Form

Appendix D:

Highlighted Choice is the correct answer

Cohort 5 - Pre/Post Test for Substance Abuse Training

1. According to the World Health Organization, hazardous substance use is defined as:
    a) A pattern of psychoactive substance use that is causing damage to health.
    b) A patterned use of a substance (drug) in which the user consumes the substance in amounts or with methods neither approved nor advised by medical professionals.
    c) Compulsive and repetitive use may result in tolerance to the effect of the drug and withdrawal symptoms when use is reduced or stopped.
    d) A pattern of substance use that increases the risk of harmful consequences for the community.

2. The DSM-V defines early remission as:
    a) for at least 1 month, but for less than 12 months, the individual does not meet any of the criteria 1-10 for a Substance Use Disorder
    b) for at least 3 months, but for less than 12 months, the individual does not meet any of the criteria 1-10 for a Substance Use Disorder
    c) for at least 3 months, but for less than 12 months, the individual 2 or fewer of the criteria for a Substance Use Disorder
    d) for at least 2 months, but for less than 12 months, the individual does not meet any of the criteria 1-10 for a Substance Use Disorder

3. Which one of these is not a major component of screening for mental health in a substance abuse treatment setting?
    a) Screen for past and present mental health symptoms and disorders
    b) Screened for past and present victimization and trauma.
    c) Screening for HIV risky behavior
    d) Screening for poverty and unemployment

4. Individuals can be screened for Substance Use Disorders and other Mental Illnesses to detect co-occurring disorders using the following screening tools EXCEPT:
    a) The DUKE
    b) WISC
    c) CIWA
    d) COWS
    e) CAGE-AID

5. Which is a component of the etiology of addiction?
    a) Genetic Predisposition
    b) Trauma
    c) Co-Occurring Mental Illness
    d) Environment
    e) All of the Above

6. The Stages of Change theoretical model assesses an individual's readiness to act on a new healthier behavior.
    a) True
    b) False

7. Which of these is not a component of the Stages of Change theoretical model?
    a) Acceptance
    b) Contemplation
    c) Action
    d) Preparation
8. Harm Reduction means?
    a) Standards used to prevent injury to staff and other clients when a client gets violent.
    b) A therapeutic technique used to encourage a client to reduce the frequency or intensity of harmful behavior they are engaging in.
    c) Restricting a client by involuntarily placing them in the hospital to prevent them from being able to harm themselves or someone else.
    d) A therapeutic technique used to get a client to completely stop engaging in an harmful behavior.

9. Addiction is a chronic medical illness.
    a) True
    b) False

10. Addiction is controlled by the reward center of the brain. Engaging in activities consistent with survival and alcohol and drugs both produce what neurotransmitter in the reward center of the brain?
    a) Serotonin
    b) Glutamate
    c) Dopamine
    d) Norepinephrine

11. Motivational Interviewing is guided by the principle of:
    a) People are more likely to be persuaded by what they hear themselves say.
    b) People want someone to tell them what to do.
    c) People want someone else to be responsible for their change.
    d) People generally do not like change.

12. Relapse is natural part of any chronic disease including addiction.
    a) True
    b) False

13. What are relapse warning signs?
    a) You begin to see signs that your client is high (i.e. red eyes, slowed thinking, slow motor functioning, and slurred speech).
    b) You begin to notice that a client does not seem to need his or her sessions with you as much (i.e they are making progress on goals, have stable relationships in their life, they are working)

c) You begin to notice that your client is irritable, canceling appointments, talks of arguments with family, and struggling at work.
d) You begin to notice that client has a strong bond with you, they are eager to work when they see you, may try to reach you outside of sessions, and their emotions are up and down frequently.

14. When are you likely to see relapse warning signs?
    a) Just before they relapse
    b) After they relapse
    c) There usually are no relapse warning signs
    d) As much as a month or two before they relapse

15. The DSM-IV Criteria distinguishes between two types of substance use disorders, what are they?
    a) Hazardous Use and Dependence
    b) Abuse and Dependence
    c) Harmful Use and Hazardous Use
    d) Intoxication and Dependence Syndrome

16. Which is not a symptom of Post-Acute Withdrawal?
    a) Stress-Sensitivity
    b) Tremors
    c) Difficulty remembering things
    d) Problems with physical coordination

17. A relapse prevention plan includes the following:
    a) Identification of Triggers
    b) List of sober support network
    c) Safety plan for what to do when cravings start
    d) Daily sober routine
    e) All of the above

18. How does the disease of addiction impact the family?
    a) Addiction only affects the person who is using alcohol or other drugs.
    b) Addiction has no genetic component.
    c) Family members can experience anger, hopelessness, isolation, increased stress, exhibit enabling behaviors and increased physical health problems.
    d) Families will not experience financial impact because of alcohol and other drug use.

19. Which of the following is NOT true regarding the relationship between PTSD and Addiction?
    a) PTSD and Addiction share common neurobiological mechanisms.
    b) Individuals should receive integrated treatment for both illnesses to maximize success in recovery.
    c) Individuals with PTSD are at increased risk for developing addictive disorders.
    d) PTSD and Addiction are two separate illnesses that are not interrelated

20. Individuals in early sobriety are better sober support than individuals who have been sober longer.
    a) True
    b) False

Appendix E:

Highlighted Choice is the correct answer

In-Service - Pre/Post Test for Substance Abuse Training

1. According to the World Health Organization, hazardous substance use is defined as:
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3. Which one of these is not a major component of screening for mental health in a substance abuse treatment setting?
    a) Screen for past and present mental health symptoms and disorders
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    c) Screening for HIV risky behavior
    d) Screening for poverty and unemployment

4. Which of the following statements regarding acute withdrawal is correct?
    a) Adults who do not receive detox for opiate withdrawal are at risk of dying
    b) 1 in 5 people who develop delirium tremens will die if they do not receive detox
    c) Acute withdrawal from alcohol and opiates usually begins about 1 week after stopping drug use
    d) Acute withdrawal symptoms from alcohol and opiates are mostly psychological

5. Which of the following signs and symptoms will help you tell the difference between alcohol withdrawal and opiate withdrawal?
    a) Elevated blood pressure, elevated heart rate, dilated pupils
    b) Nausea and vomiting

c) Tremor
d) Teary eyes, running nose, body aches

6. The Stages of Change theoretical model assesses an individual's readiness to act on a new healthier behavior.
    a) True
    b) False

7. Which of these is not a component of the Stages of Change theoretical model?
    a) Acceptance
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    d) A therapeutic technique used to get a client to completely stop engaging in a harmful behavior.

9. Addiction is a chronic medical illness.
    a) True
    b) False

10. Choose the option that matches the correct detox medications with the correct drug:
    a) Opiate --Lorazepam; Alcohol--Diazepam
    b) Alcohol--Diazepam; Opiate--Methadone
    c) Opiate--Diazepam; Alcohol--Buprenorphine
    d) Opiate--Buprenorpine; Alcohol--Methadone

11. Motivational Interviewing is guided by the principle of:
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14. When are you likely to see relapse warning signs?
    a) Just before they relapse
    b) After they relapse
    c) There usually are no relapse warning signs
    d) As much as a month or two before they relapse

15. What are the risks of Methadone?
    a) Liver damage and elevated blood pressure
    b) Swelling in the extremities
    c) Death from respiratory depression, addiction to methadone and medication-medication interactions
    d) Methadone does not have any risks

16. Which is not a symptom of Post-Acute Withdrawal?
    a) Stress-Sensitivity
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    c) Difficulty remembering things
    d) Problems with physical coordination

17. A relapse prevention plan includes the following:
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