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Integrating Yoga into a Medication Assisted Treatment Program to Improve Retention

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Table of Contents

Abstract.....	3
Problem Description.....	5
Available knowledge.....	9
Rationale.....	12
Specific Aims.....	14
Context.....	15
Cost Benefit Analysis.....	17
Intervention.....	19
Study of the Intervention.....	20
Measures.....	21
Analysis.....	25
Ethical Considerations.....	26
Results.....	27
Discussion.....	32
Interpretation.....	34
Limitations.....	36
Conclusions.....	36
Next Steps.....	37
Funding.....	39
References.....	40

ABSTRACT

Background: In 2017, Health and Human Services declared the opioid epidemic a public health emergency (US Department of Health & Human Services, 2017). As a response, access to medication assisted treatment (MAT) programs was encouraged. In 2016, a community health center in Western North Carolina started a MAT program integrating buprenorphine treatment with behavioral health (BH) services. Data from May 2018 through May 2019 demonstrated retention in the MAT program ranged from 65-75% at a given time with behavioral health attendance under 50%.

Aims: The aim of this quality improvement project was to examine if integrating yoga, an evidence-based somatic therapy, into the MAT program would improve attendance and retention in the MAT program. A secondary aim was to assess whether craving scales and quality of life metrics were comparable between yoga and traditional BH attendees. Finally, ongoing feedback from participants and therapists was examined to improve the MAT yoga program.

Method: One-hour yoga sessions were offered over 12 consecutive weeks. The curriculum consisted of poses, breath work, psychotherapy and psychoeducation of moral precepts (yamas and niyamas). Opioid craving scales, quality of life measures and open-ended questions were taken at baseline, 6 weeks and 12 weeks.

Results: Participants were young adults, Caucasian males and females, from a low socioeconomic background. Behavioral health attendance during the MAT Yoga project increased from less than 50% attendance to a mean of 70.24% (n=7). Overall program retention was 100% (n=7). Cravings, desire and likelihood of use decreased. There was minimal change in quality of life metrics with activities of daily living most improved. Participants related a

reduction in anxiety, depression and stress. All participants signed up for the next series of sessions.

Conclusions: The findings demonstrated offering yoga as an alternative to traditional BH talk therapy is feasible in community health. The findings and participant feedback from this quality improvement project can be used to expand and improve the program moving forward.

Participant feedback indicated that offering later sessions, having longer sessions and more sessions is desirable. Larger studies and longitudinal studies are needed to gather more data.

Keywords: community health center, medication assisted treatment, opioid use disorder, somatic therapy, therapeutic yoga

Integrating Yoga into a Medication Assisted Treatment Program to Improve Retention

Problem Description

In 2017, Health and Human Services identified a nationwide opioid epidemic and declared a public health emergency (US Department of Health & Human Services (HHS), 2017). Investigations into the root cause of this epidemic revealed unethical practices by the pharmaceutical companies in the 1990s in which data misrepresented the non-addictive qualities of opioid (Gale, Noggle, Park, Vargo, & Wilson, 2016). At that time, providers were encouraged to prescribe opioids without regards to frequency and duration. Federal and state action has led to stricter prescribing protocols in an effort to reduce the continued increase of opioid addiction (Peterson, Peters, Richard, & Whites, 2018). Restrictions on opioid prescribing in turn has led to increased heroin use and acquisition of opioids from the street (National Institute of Health: National Institute on Drug Abuse, 2018). This epidemic has economic and societal repercussions for the states (Florence, Luo, Xu, & Ahou, 2018). Treatment is often difficult to find and expensive. Available treatments are inadequate with most clients experiencing setbacks, where they return to use, multiple times before long- term recovery (Chalana, Kundal, Gupta, & Malhari, 2016).

Statistically, in 2017, more than 47,000 Americans died as a result of an opioid overdose including prescription opioids, heroin, and fentanyl nationwide (National Institute of Health (NIH) 2019). An estimated 1.7 million people in the United States suffered from substance use disorders related to prescription opioid pain relievers, and 652,000 suffered from a heroin use disorder (NIH, 2019).

The opioid epidemic has hit North Carolina particularly hard. According to North Carolina Health and Human Services (NCHHS) (2018), the rate of opioid related Emergency

Department (ED) visits increased in western North Carolina (NC). In 2016 there were 4,177 overdose visits to the ED with 5,762 visits in 2017. Data from the National Institute on Drug Abuse (NIDA) (2018) for western NC reveals 8.1 deaths per 100,000 persons in 2010. In 2016 the rate increased to 16.2 deaths per 100,000 persons. Overdoses are underreported since many do not make it to the hospital. The same report from NCHHS (2018) documents 40% of opioid-related ED visits were people aged 25–34 years old and 13% were under 10 years old. Neonatal abstinence syndrome in western NC has also increased from 0.3 per 1,000 births in 2000 to 6.4 per 1,000 births in 2013; a 21fold increase (NIDA, 2018).

These statistics support the need for effective opioid treatment interventions that save lives, reduce the burden on EDs and reverse the alarming increase in neonatal abstinence syndrome. With effective treatment strategies and participation in medication-assisted treatment (MAT) programs, emergency and acute services can be reduced saving significant community resources (Florence et al., 2018). MAT programs and in particular suboxone has the clearest evidence for reducing overdose deaths (Volkow & Wargo, 2018). At this time, available medications for opioid dependence are methadone, buprenorphine, and naltrexone. These medications bind with opioid receptors in the brain to stop symptoms of withdrawal and cravings.

Within western NC additional programs to treat opioid use disorder have been implemented and show moderate success. In 2016, a community health center in western NC received a grant from the Substance Abuse and Mental Health Services Administration (SAMHSA) to implement a program to identify clients at risk for substance use disorder and those in need of treatment. A screening, brief intervention and referral to treatment (SBIRT) model was initiated. In the first two years, 10,000 clients were screened. Clients with substance

use disorder were identified. At the same time, a MAT program was implemented using buprenorphine as the medication treatment modality. The MAT program was predicated on an evidence based structured framework integrating medication with behavioral health services. In the first year, the program was based in the behavioral health department and treatment provided by a Psychiatrist, a number of Licensed Clinical Social Workers, a Registered Nurse (RN) Case Manager and the Behavioral Health Medical Director.

The rationale of linking MAT with behavioral health is a philosophy supported by the SAMHSA. They define MAT as "... the use of FDA-approved medications, in combination with counseling and behavioral therapies, to provide a "whole-patient" approach to the treatment of substance use disorders" (SAMHSA, 2019). A requirement of the SAMHSA grant is that clients receiving medication would also engage with behavioral health (BH) appointments. The community health center, being an integrated community health care center was in support of this approach and established behavioral health engagement as a parameter of the MAT program.

Attendance to both medical and BH appointments ranged from 65-75%. Behavioral health attendance in the program was expected once weekly in a group therapy setting with reduction of required attendance based on time in the program and recommendations from the MAT team. Overall retention in BH within the MAT program was 65-75% at a given time. The attrition rate was mainly due to diversion of prescribed medications. Individuals found to be selling the medication rather than taking it were dismissed from the program. The program expanded into the medical clinics allowing primary care providers to offer MAT to clients and treat opioid dependence as a chronic medical condition. Expansion of the program was seamless with 30 providers at the community health center obtaining their Drug Addiction Treatment Act (DATA) waiver to prescribe buprenorphine. Each client in the MAT program is supported by a

team which includes a prescriber, therapist and case manager. The team reviews the status of each patient and makes recommendations for the client's treatment. The teams identified a reduction of clients attending the required behavioral health appointments to less than 50% indicating a need for assessment of BH engagement.

The need to attend BH appointments is important for two reasons; one for administrative purposes and the other for patient outcomes. First, engagement in BH services is a grant requirement. Quarterly, the organization reports MAT clients who received a buprenorphine prescription and BH appointment attendance to HRSA (Health Resources and Services Administration). The sustainability of this grant is tied to this data. If grant expectations are not being met, this resource may be eliminated. Second, evidence suggests that behavioral health along with medication supports opioid recovery since therapy can assist the client in managing co-morbid disorders such as depression, anxiety and other triggers of opioid use. Behavioral interventions, in addition to medical management, may not be necessary in all cases but "evidence-based behavioral interventions can be useful in engaging people with opioid use disorder in treatment, retaining them in treatment, improving outcomes, and helping them resume a healthy functioning life" (National Academies of Sciences, Engineering and Medicine, 2019). Therapy creates a strong therapeutic relationship which offers additional support to the client. A NIDA sponsored publication looking at methadone programs in the U.S and found therapy was directly linked to successful treatment outcomes (Ball & Ross, 1991). Recently, however, evidence as to the importance of therapy for clients in MAT programs is variable. A literature review of 26 studies and 2,582 participants looked at the link between psychosocial interventions with pharmacotherapy in MAT programs and concluded that results did not show benefit of therapy for retention in treatment (Amato, Minozzi, Davoli, & Vecchi, 2011). A

different literature review concluded that methadone maintenance treatment is enhanced by a variety of psychosocial interventions (Drummond & Perryman, 2005). All of these studies explored traditional psychotherapy as the modality of treatment. At this time, SAMHSA recommends routine behavioral health therapies for clients in medication assisted treatment programs.

Available Knowledge

Setbacks in substance use disorder (SUD) treatment programs is a common phenomenon and therefore retention in MAT programs is a critical marker for client success. Relapse rates were between 40-60% for opioids and as high as 90% for heroin (National Institute of Drug Abuse (NIDA), 2018). A systematic review of retention in MAT programs for opiate dependency summarize 55 articles from 2010-2015 and “found wide variability in the rates at which opiate-dependent clients are retained in MAT (i.e., 19%–94% at 3-month, 46%–92% at 4-month, 3%–88% at 6-month, and 37% –91% at 12-month follow-ups in randomized controlled trials), and identified medication and behavioral therapy factors associated with retention.” (Timko, Schultz, Cucciare, Vittorio, & Garrison-Diehn, 2016, p. 22).

The most common BH therapy is traditional talk therapy, although other modalities demonstrate efficacy. Yoga modalities offer an alternative to traditional behavioral health talk therapy and similar retention has been identified and self-regulation may be improved. A study of yoga as an intervention within a MAT program found no differences in retention rates or relapse rates however, they recommended integrating this intervention into a required group within a MAT program rather than having the behavioral health component be voluntary (Lander, Downs, Andrew, Rader , Dohar, & Waibogha, 2018). Participation in behavioral health sessions was not a requirement of the MAT program in that study. A comparison of hatha yoga with

dynamic group psychotherapy in a MAT program and found no difference in retention rates between the groups but both interventions significantly reduced drug use and criminal activity (Shaffer, LaSalvia, & Stein, 1997). This study documented a number of client reports that the yoga intervention was “pivotal” in their recovery. Psychiatric impairment is associated with negative outcomes for those with opioid dependency. Those with comorbid psychiatric diagnoses such as depression, anxiety and bipolar disorder have a higher rate of setbacks (NIDA, 2018). Traditional talk therapy is not effective due to the physiological effects of those with substance use disorders since psychoactive drugs may cloud cognitive processing. (Woody, et al., 1983). A systematic review notes contingency management (CM) as an intervention (e.g.: gift cards, rewards) may improve short term retention in MAT programs but does not address the underlying causes of addiction or a patient’s internal motivation for abstinence (Timko et al, 2016).

There are multiple studies showing that yoga decreases anxiety and depression, two leading causes of setbacks. Without changing one’s immediate internal responses to the triggers that lead to drug use, such as anxiety, depression and stress, a higher rate of setbacks can be expected. Somatic therapy is an intervention that mediates these initial fight, flight and freeze responses while providing healthy self-regulation skills to avoid returning to old patterns of behavior. A narrative review on yoga and substance use disorder discussed evidence which suggests yoga may be useful to prevent setbacks during detoxification of medically stable patients (Sarkar & Varshney, 2017). This review looked at 17 studies evaluating the efficacy of yoga in substance use disorders. Of those 17 studies, 3 looked at opiates as the substance of use. They recognize the period immediately following detoxification as a stressful period for the

patient. Since relapse occurs during stressful times, the authors conclude that by decreasing anxiety during this time, reduction of drug taking behaviors will be reduced.

Yoga as a science modifies physiologic responses to the body. Yoga acts on the autonomic nervous system and reduces stress hormones (cortisol, adrenaline and norepinephrine) leading to a reduction of anxiety. Additionally, yoga activates attention networks which improves the nervous system leading to a reduction in emotional reactivity. Elevated stress hormones have the potential to lead to the risk behaviors associated with opioid use (Cramer, Lauche, Langhurst, & Dobos, 2013).

The combination of addiction along with anxiety, depression and other psychiatric diagnoses complicates the recovery of addition, although studies have demonstrated yoga addresses these symptoms in clients with SUD. A semi-experimental investigation demonstrated that yoga made a significant positive difference in depression and anxiety for the experimental group than with the control group in the rehabilitation period ($p=0.048$), ($p=0.023$). Since depression and anxiety lead to self-medication with substances, the authors suggest that by treating depression, those struggling with SUD may have less substance use (Marefat, Peymanzad, & Alikhajeh, 2011). Yoga at an acute in-patient substance abuse psychiatric unit resulted in a decrease of anxiety and drug cravings following a 6-week program of yoga (Cisse, Giles, & Salloum, 2017).

It appears that yoga directly reduces anxiety and depression which are triggers for illicit drug use. If yoga decreases the triggers for opioid use, then the intervention may lead to retention in behavioral health thereby reducing setbacks for clients in MAT programs. This reduction in setbacks may increase overall MAT program retention and support long-term recovery.

Rationale

Behavioral therapy traditionally utilized psychodynamic therapy, cognitive behavioral therapy, and motivational interviewing. More recently, somatic therapy has become a mainstream therapeutic modality with burgeoning evidence to support it. Yoga is an intervention within the somatic therapy family. Traditional cognitive therapists use a top-down processing approach as an intervention for mental health disorders (Gard et al., 2014; Van Der Kolk, 2014). This approach first uses the language area of the brain to explore feelings and memories. Somatic therapists use a bottom-up approach. This approach is predicated on the theory that the brain responds first to stimuli on a physiologic level and then processes information for logical reflection for storage in the brain for future recall (Gard et al., 2014; Van Der Kolk, 2014). Many times, logic is unable to explain what the body is sensing rendering it impossible to store that information on a cognitive level. Rather, the brain stores the physiologic feelings, not the rational explanation. Therapy which relies on top-down processing interventions may not provide relief since the brain has not integrated the trauma, anxiety or depression at the cognitive level. The bottom-up approach, namely the somatic approaches like yoga seek to target the emotions at the physiologic level and integrate them with cognitive processing (Popowitz, 2014; Gard et al. 2014; Van Der Kolk, McFarlane, & Weisaeth, 1996).

Somatic therapy is based upon the theory that the mind, body and spirit become disconnected during times of trauma and at other difficult periods in people's lives. Research demonstrates that substance use disorder is directly linked to trauma history. 46.4% of PTSD clients meet DSM criteria for SUD (McCauley, Killeen, Gros, Brady, & Back, 2012). Among clients seeking treatment for SUD, the trauma rate is over 60% (McCauley et al, 2012). Trauma informed yoga treats the trauma underlying the addiction.

During difficult times, a person's resiliency of the mind is negatively affected. When trauma occurs in infancy the neural pathways in the brain are highly responsive to threat. Since the neocortex is not developed, the child cannot make sense of it. This leads to hyperarousal on a physiologic level. In these times of trauma, the brain is unable to make sense of the experience thereby leaving verbal language at a loss to explain the situation (Dwyer, O'Keefe, Scott, & Wilson, 2012; Van Der Kolk, 2014). In order to escape the uncomfortable sensations in the body, people turn to drugs and other destructive behaviors. Opioids often initially decrease these uncomfortable sensations through altering the pain response network. Opioids therefore change the relationship of the body to the brain causing a further disconnection of the body and the mind rendering it difficult to make logical decisions (Van Der Kolk, 2014). Yoga develops interoceptive skills assisting the patient to regain control and trust over their body sensations; the ability to receive stimuli originating from the interior of the body. "Interoception is our awareness of what is going on within the boundary of our own skin. It is intra-organismic awareness" (Emerson, 2015, p. 44).

Restoring this relationship is the foundation for somatic therapy. Somatic therapy, particularly yoga, reframes and transforms current or past negative experiences and restores resiliency (Van Der Kolk, 2014). Yoga practice includes a combination of asanas (poses), pranayama (breath) and meditation (including mindfulness) among other elements such as the yamas and niyamas which embrace moral precepts of living. The yamas are actions that are to be practiced (non-harming, honesty, non-stealing, higher awareness, and non-greed). The niyamas are qualities to be observed (purity, contentment, sacrifice, self-study and spirituality) (Weber & Sculthorp, 2016). Somatic therapy, through the reintegration of the body, mind and spirit supports the patient to a deeper understanding of their present situation, which enables

them to overcome the past and move into the future with positive outcomes. If a client is able to increase levels of self-awareness early in the treatment phase of opiate recovery, they should have an increased desire to attend somatic therapy sessions routinely, increasing retention in the MAT program and improving their quality of life.

Somatic therapy, in particular yoga, produces many positive gains. Findings in a randomized control study demonstrated that yoga enhanced interoceptive awareness, emotional regulation, experience of positive emotions and provided a sense of safety within one's body. The qualitative data illustrated an overall feeling of personal growth. Participants remarked on their ability to make better choices and determine the direction of their lives. Other positive outcomes included the ability to connect to others and accept themselves. Participants noted a sense calm and internal balance (West, Liang, & Spinazzola, 2017).

A review of available literature on the effects of yoga on the quality of life showed that yogic practices improved strength and flexibility as well as respiratory and cardiovascular function. The same study found yoga promoted recovery from substance use disorder. Additional findings revealed positive outcomes in the reduction of stress, anxiety and depression with improvement in sleep patterns. Overall, the findings indicated an improvement in the quality of life for those who participated in a yoga practice (Woodyard, 2011).

Specific Aims

The primary purpose of this quality improvement project was to improve retention in behavioral health for clients engaged in a MAT program in western NC. By improving participation in therapy appointments, retention of clients in the program should increase, thus reducing setbacks. Somatic therapy, specifically yoga, increases one's self-awareness and accesses areas of the body that talk therapy cannot reach. If the client experiences positive gains

quickly in therapy, they may have increased motivation to attend their required behavioral health appointments.

A secondary aim of this quality improvement project was to explore the client's satisfaction with yoga as an alternative to traditional group psychotherapy. This was demonstrated by asking open-ended questions at baseline, 6 and 12 weeks about what experience and outcomes. Currently, all behavioral health clients are asked five quality of life questions. Since this project is interdisciplinary between the medical and behavioral health departments, additional questions related to health outcomes such as perceived satisfaction with health, concentration, and ability to perform activities of daily living was added to provide feedback to medical providers.

A third aim of this project was to begin a quality assurance process for yoga as an option to traditional psychotherapy for MAT clients. If outcomes did not duplicate prior research study results, exploration into processes occurred to see what was missing and what needed improvement. Plan-do-study-act cycles can be implemented for continuing quality assurance and feedback can be offered to those practitioners providing this service.

Context

The community health center is an integrated health care organization designated as a Federally Qualified Health Center (FQHC) providing medical, dental, nutritional and behavioral health services in seven counties in western NC. These services are offered in nineteen medical sites, a homeless shelter and schools throughout three counties. Funding for the community health center comes from the federal government, state Medicaid, grants and donations. The organization serves clients without insurance by providing a sliding fee scale, as well as those with Medicaid, Medicare and commercial insurances. No client is turned away if they if they do

not have the monetary resources to pay. The mission of the community health center is to “provide quality health care that is accessible and affordable to all”.

The behavioral health team is led by the Medical Director who is a Family Nurse Practitioner and a Psychiatric Mental Health Nurse Practitioner. On staff is an Addiction Medicine Psychiatrist, a Pediatric Psychiatrist, 6 Psychiatric Mental Health Nurse Practitioners, 23 Licensed Clinical Social Workers (LCSW) and 3 Licensed Professional Counselors (LPC), many who hold additional certification as Licensed Clinical Addiction Specialists (LCAS). Three therapists and the Medical Director hold additional certification as somatic therapists. In addition, there are 2 RN Case Managers and three support staff.

All clients identified with SUD, who desire treatment are referred to the therapist to have a biopsychosocial assessment. This assessment determines the American Society of Addiction Medicine (ASAM) level of care. Clients entering the community health centers MAT program must be Level 1 or lower. Level 1 refers to those clients where outpatient intervention is adequate to promote recovery. It is appropriate to provide outpatient services when the client recognizes their substance use is a problem and are motivated to engage in recovery services. Medical detoxification services are not needed at this ASAM level (American Society of Addiction Medicine, 2013). This assessment further serves to identify social determinants, obstacles and motivation for treatment. Social determinants identified at this stage are managed by the RN Case Manager. Obstacles and motivation for treatment are assessed and addressed by the therapist performing the assessment. If the client is an appropriate candidate for MAT based on their ASAM level of care, they are referred to the medical provider for medical clearance and buprenorphine. Clients in the MAT program agree to have weekly group therapy with the behavioral health therapist. Currently, traditional therapy modalities such as cognitive

behavioral therapy and psychodynamic therapy is available. Additional individual therapy and medication management for behavioral health co-morbid diagnoses is also available. Clients agree to random urine specimens and random film/pill counts. Lack of compliance to behavioral health appointments, random urine screens and pill/film counts may be criteria for dismissal from the MAT program, however, every effort is made by program staff to support the client in overcoming obstacles that result in non-compliance. Decisions regarding dismissal are made by the prescriber, therapist and case manager. Sometimes it is determined that additional support is needed for the client (e.g.: peer support) and that is put into place prior to dismissal. Any dismissal from the MAT program is followed up with appropriate referral for services such as intensive outpatient program referrals.

Cost Benefit Analysis and Budget

Tangible Costs of the Project

Table 1

Tangible Costs of the Project

<u>Human Resources</u>	
Therapists/Yoga Teacher (2 @\$28/hr. each x 2 one-hour sessions each x 12 weeks)	\$1344.00
Front Desk (1 @ \$15/hr.: 15 min x 4x/week x 12 weeks)	\$ 48.00
<u>Overhead</u>	
Office Space (built on grant funding years ago-no cost)	\$ 0.00
Electric	\$ 10.00
Heat/AC	\$ 10.00

<u>Supplies</u>	
Office Space (built on grant funding years ago-no cost)	\$ 240.00
Yoga Blankets x 10	Donated
Cleanser for mats	Donated
<u>Misc.</u>	
Paper/photocopying	\$ 20.00
TOTAL	\$1672.00
Sessions are free to patients	
Cost of Medication: (paid by patient or insurance)	
\$50/month/patient x 3 months = \$150.00/patient	

Benefits of the Project

The value of patients having positive outcomes in BH is difficult to measure. Drug rehabilitation can cost up to \$25,000 or more depending on factors such as length of stay, facility option and available insurance. Rehabilitation for opioid addiction costs about \$6,552 per year for methadone-assisted treatment, \$5,980 per year for buprenorphine-assisted treatment and \$14,112 per year for naltrexone-assisted treatment (Advanced Recovery Systems, 2019). When comparing an inpatient cost of \$25,000 to a yearly cost of MAT of \$14,000, a cost savings per client would be \$11,000. This cost savings is enhanced at a FQHC or other non-profit health care facilities.

The cost to the community when residents are dependent on opiates, unemployed and at risk for incarceration is another factor to consider. The economic burden is estimated to be \$78.5 billion due to increased health care and substance abuse treatment costs with one quarter of the cost paid for by the public (Curtis, Luo, Xu, & Zhou, 2016). Local community resources endure

financial stress as well. While these are difficult to measure, treatment does reduce the economic and emotional stress on communities through decreased use of health care facilities, Department of Social Services and the criminal justice systems.

Alternative Comparisons

What are the options available for clients in need of recovery services and how do their outcomes compare?

- Option A: Yoga for behavioral health therapy = possible decreased drug use and program retention.
- Option B: Medication without therapy requirement = possible increase of setbacks for MAT clients.
- Option C: Offer traditional therapy only = Lack of attendance at BH appointments and possible setbacks.

Since a decrease in BH attendance has been identified at the community health centers' MAT program, offering an innovative therapeutic modality such as yoga as an intervention to increase BH retention seemed a reasonable option. It is cost effective, evidence-based and shows promise in increasing engagement in the MAT program.

Intervention

Yoga psychotherapy groups will be examined as a therapeutic intervention for MAT participants. Clients in the MAT program were notified of the new alternative yoga option by medical and behavioral health providers. The project was marketed by providing handouts to MAT clients and program presentations to providers. Participants in the MAT program chose to attend these sessions rather than the required traditional talk-therapy sessions currently offered. The RN case manager discussed the session with interested clients and scheduled them with the

therapist running the group. The therapist provided information on what they can expect and prepared them with specific preparatory details (e.g.: attire, eating prior to class, times).

Preliminary baseline measures were administered at this initial meeting.

Prior to each session, the client signed an attendance log that was also a waiver for injury and a “Group Somatic Therapy” consent form. Sessions lasted one hour. The curriculum followed the techniques and sequencing from trauma informed yoga principles. At the beginning of each session, the teacher checked in with the clients to ascertain if there are any illnesses or injuries. When identified, modifications were introduced to assist the clients (2-3 minutes). An intention for the class was then set (2-3 minutes). An intention focuses the clients mind on something they want to cultivate and keeps their mind from being distracted during practice (e.g.: forgiveness, peace, awareness). Based on the energy of the group, appropriate poses were chosen for grounding (focusing client’s attention to the present). All classes included pranayama (breathwork), asanas (poses) and meditation/mindfulness (35 minutes). At the end of the class, the group processed their feelings and reviewed the assignment from the prior week. A yama or niyama was assigned for the weekly homework (20 minutes). Providers then administered assessment tools as required and completed documentation into the electronic medical record (EMR).

The team involved in this quality improvement project included the Behavioral Health Medical Director/DNP Student, Director of Quality Management, one LCSW, one LPC, one RN Case Manager, and one support staff.

Study of the Intervention

Assessment tools were administered at baseline, 6 weeks and 12 weeks by the LCSW and LPC. The primary assessment was retention in the MAT program which was measured by

attendance to the yoga therapy group sessions. Attendance for the other recovery groups was measured as well. Assessment tools utilized measured opioid craving, quality of life, and open-ended questions on program satisfaction. Assessment was conducted at baseline, 6 weeks and 12 weeks. This approach established whether the observed outcomes were due to the intervention or other factors.

Measures

Retention in MAT Program

Attendance. The first aim of this project measured retention to behavioral health sessions. Attendance records of the BH sessions were checked against client registration in the EMR. The data was collected to measure the number of times the participant came to a yoga session.

Opioid Craving Scale. To identify the impact of the intervention on the level of opioid craving, the Opioid Craving Scale (OCS) was administered. The OCS was developed in 2014 by McHugh et al. This tool was developed as part of a study in the National Drug Abuse Treatment Clinical Trials Network (NIDA CTN). The OCS is a modification of the Cocaine Craving Scale and is used to measure opioid craving for adults. This scale has three items and is rated on a visual analogue scale from 1-10. The OCS asks the client to respond to three questions assessing their current opiate craving, desire to use opiates and likelihood of return to use. Each question is rated independently. Composite scores are not analyzed.

This tool has a demonstrated internal consistency, reliability and predictive validity. Every one-unit increase in the score (scale of 1-10) is associated with 17% higher odds of opioid use in the following week (McHugh, et al, 2014) (Table 2). This measure is predictive for

retention in behavioral health and the MAT program. Intense opioid craving impacts the retention of a client in behavioral health and the MAT program at large.

Table 2

Opioid Craving Scale Questions

	<i>The Opioid Craving scale asks participants to rank the following questions on a visual analogue scale from 0-10 (0=None/10=extremely)</i>
Q. 1	How much do you currently crave opiates?
Q. 2	In the past week, please rate how strong your desire to use opiates had been when something in the environment has reminded you of opiates?
Q. 3	Please imagine yourself in the environment in which you previously used opiates. If you were in this environment today and if it were the time of day that you typically used opiates, what is the likelihood that you would use opiates today?)

Craving is a core characteristic of opioid use disorder associated with the risk of setbacks in numerous studies (Kakko et al., 2019). Medication assisted treatment along with non-pharmacologic treatment such as complementary therapies has been shown to reduce setbacks. It is recommended that craving should be used as a treatment target to reduce relapse, improve quality of life for those in recovery and improve retention in medication assisted treatment programs (Kakko et al., 2019). In the European Quality Audit of Opioid Treatment (EQUATOR) survey of patients receiving opioid agonist therapies, 60% admitted to regular or occasional use of drugs while in a medication assisted treatment program. One in six patients disclosed that the lack of control of cravings was the primary reason for the drug use (Fischer, Nava, & Stover, 2012).

Client Satisfaction with Yoga Program

Quality of Life. The second aim of this quality improvement project was to explore the client's satisfaction with yoga as an alternative to traditional group psychotherapy. Quality of life was measured as a component of program satisfaction. The World Health Organization defines

Quality of Life (QOL) as “an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns” (WHO, 2019). The WHOQOL-BREF tool measures criteria in 4 domains; Physical health, psychological health, social relationships, and environment. The WHOQOL-BREF assessment tool was developed for health professionals to assess changes in the client’s QOL over the course of treatment. The tool has proven validity, content validity and test-retest reliability (World Health Organization, 2019).

Clients respond to the WHOQOL-BREF items on a 5-point Likert scale, with a score of 1 indicating “very dissatisfied” and 5 indicating “very satisfied”. Higher scores denote higher rates of positive experiences. For the purpose of this project, each question was scored independently to assess individual experience. The eight WHOQOL-BREF questions were asked at baseline, 6 weeks and 12 weeks to determine the impact of the intervention on the client’s feelings in regard to their quality of their life and health (Table 3). At baseline clients were asked which QOL component was most important to allow assessment of whether the intervention was supporting them in meeting their goals.

Table 3

WHO Quality of Life Questions

Q. 1	How would you rate your quality of life?
Q. 2	How satisfied are you with your health?
Q. 3	How much do you enjoy life?
Q. 4	To what extent do you feel your life to be meaningful?
Q. 5	How well are you able to concentrate?
Q. 6	How satisfied are you with your ability to perform daily living activities?
Q. 7	How satisfied are you with your personal relationships?
Q. 8	How often do you have negative feelings such as blue mood, despair, anxiety, depression?

Open-ended Questionnaire. Open-ended questions assessed the meaning of the yoga intervention to participants and guided continuous quality improvement of the intervention.

(Table 4).

Table 4

Open-Ended Questions

<u>Baseline</u> Why have you chosen to participate in the yoga psychotherapy sessions? What symptoms would you like to see reduced through these sessions? What might be a barrier for you to attend?
<u>Six Weeks</u> What positive or negative experiences have you had since taking the yoga psychotherapy sessions? What symptoms have increased or reduced since participating in these sessions? What has been a barrier for you to attend?
<u>Twelve Weeks</u> What has been most valuable for you in participating in the yoga psychotherapy sessions? What has been the least valuable part of this experience? What symptoms have increased or reduced since the beginning of the sessions? What have been barriers for you to attend? Rank the parts of the sessions have been the most valuable to you (1=most important/4=least important): _____ Breathing exercises _____ Poses _____ Yama/Niyama activity _____ Processing at the end of sessions

Ongoing Quality Improvement. The third aim of this project was to begin a quality assurance process for yoga as an option to traditional talk therapy for MAT clients. Provision of yoga as a behavioral health option for MAT clients will need to be continually assessed. The information gathered from the OCS, WHOQOL metrics and open-ended questions will be used for future plan-do-study-act cycles. This data will provide baseline information for the yoga recovery program and used to guide recommendations for revisions within the program. Program revisions will be implemented and reassessed.

Analysis

Analysis was conducted in Excel by calculating descriptive statistics from the measures collected. Changes from baseline, 6 weeks, and 12 weeks were monitored throughout the program. Measures were also entered into the client's EMR record for interdisciplinary communication.

Attendance at yoga and BH appointments was the primary measure of retention in behavioral health. Data were retrieved from the EMR and compared to attendance logs for accuracy. The OCS scale scores assessed cravings and the relationship of craving to retention in BH sessions, as cravings are the number one measure for MAT setbacks and disengagement (McHugh et al, 2014).

Analysis for the second aim examined client's satisfaction with yoga as an alternative to traditional group psychotherapy. A comparative analysis examined if the yoga intervention improved perceived quality of life as measured by the WHOQOL-BREF and open-ended question responses. Question responses were reviewed and summarized to better understand the positive aspects and the challenges experienced by clients.

The third aim of this project, initiating a quality assurance process for yoga, was primarily assessed through open-ended question responses but informed by all measures. This approach offered direct feedback from the patient's perception on the yoga intervention including what parts of the session were the most helpful and least helpful for them. Client responses provided feedback for the program in general and contributed to program revisions. An analysis of barriers to participation was used to inspire further quality improvement projects by offering information to the organization about direct obstacles for client participation in the MAT program.

Ethical Considerations

All clients voluntarily choose to participate in the yoga intervention for BH retention project or have BH services in traditional psychotherapy groups. The administration of MAT services did not depend on which group the client chose. At the onset of the project it was made clear that yoga is a way to experience one's feelings with the goal of reintegrating the body, mind and spirit, and not a religious doctrine. Providers worked within the scope of their psychotherapy and yoga practice. Confidentiality was discussed with the participants. To minimize participant risk, primary care providers provided medical clearance for yoga. The link between substance use disorder and trauma is well researched. To avoid triggering trauma, no hands-on assisting was offered. All instruction was verbally given with instructor demonstration when appropriate.

Some ethical dilemmas may occur for the therapist who teaches yoga as a complimentary therapy (Kamradt, 2017). To address the possible confusion that may occur for the client with a relationship with the provider as a therapist and a yoga instructor professionalism and clarity is important. Any therapist offering yoga as a psychotherapeutic modality at this organization must have certification in a system of trauma informed yoga and a yoga teacher certification. In this way the highest standards of conduct are maintained, and the risk of mental and physical harm reduced.

The project proposal was presented to the Management Council Team for approval. This team functions as the organization's internal quality improvement committee. This quality improvement project proposal was submitted to the University of New Hampshire for approval prior to the start of the project, which confirmed the project represented quality improvement and did not require Institutional Review Board approval.

The project manager and therapists participating in this project believe that yoga as an intervention in the mental health field yields positive outcomes. This belief may potentially cause bias that they may desire to see positive results which may affect patients on an unconscious level. To mitigate this potential conflict, discussion about potential bias was processed prior to the initiation of the project. Individual supervision was available after each session. Team meetings were held monthly.

Results

Over the course of this project, a one-hour yoga session was facilitated weekly for 12 weeks following an established curriculum of breathwork, poses, psychoeducation and psychotherapy. Participants signed up for either the Monday or Thursday group. Both groups were offered at 5pm. Nine participants registered for the MAT Yoga Recovery sessions. Two participants dropped out prior to the start of the sessions. One participant dropped out due to distance and one dropped out due to a changing work schedule. There were 2 participants in Mondays group and 5 participants in Thursdays group. All participants received a reminder phone call to attend session. All absent participants who did not call out received a call to remind them of the next session.

Retention in MAT Program

Attendance. Behavioral health attendance at baseline was below 50%. For the participants who joined the yoga program, their overall attendance was between 35-50% at baseline. Total attendance for the Monday and Thursday groups after the yoga intervention was 70.24% (n = 7). Attendance varied between groups. The Monday group attendance (group 1) was 91.67% (n = 2). Attendance for the Thursday group (group 2) was 61.67% (n = 5). Both

groups performed above baseline attendance rates. Participants retained in the MAT program at the conclusion of the project was 100%.

In terms of QI efforts related to attendance, contextual elements impacting attendance varied for participants. Sick children or elderly family members needing participants presence resulted in three missed sessions. Flu and other illnesses resulted in five missed sessions. Work schedules, traffic and travel from work made it difficult for some participants to attend all sessions. This resulted in four missed sessions. Personal emergencies such as the death of a family member or family crisis accounted for three missed sessions. Coming on the wrong day resulted in one missed session. The day of a session in week 4 had to be changed due to the Thanksgiving holiday resulting in two missed sessions. Out of 25 missed sessions, the above accounted for 18 missed sessions; Seven participants were no shows without explanation.

Barriers remained consistent at baseline, 6-week and 12-week assessments.

Opioid Craving Scale. From baseline to 12 weeks, craving scales decreased for three participants and did not change for four participants. At week 6, three participants had an increase in their craving scale. All cravings decreased by week 12 (Table 5). One participant had a setback where they were using opioids during the week of Thanksgiving while visiting family out of town. There were no other reports of setbacks. All random drug screens taken during these 12 weeks were negative (no illegal substances found).

Opioid craving was medically managed by buprenorphine. Adjustments for doses were made for some participants during the 12 weeks by the participant's prescriber. By week 12, all participants had a decrease in cravings for all questions or remained at baseline with one exception of one participant for question 2. Participants may have had other psychotropic medications as well to support various behavioral health diagnoses.

Table 5

Summary of Opioid Craving Scale and WHOBREF Quality of Life Questions

Assessment	Baseline	6 Weeks	12 Weeks	% Change from Baseline
Opioid Craving Scale				
OCS Craving	1.6 (SD 2.07)	1.7 (2.21)	0.7 (1.25)	44%
OCS Desire	1.9 (SD 2.41)	2.4 (3.36)	0.4 (0.79)	21%
OCS Likelihood of Use	2.7 (SD 4.35)	1.9 (3.60)	0.9 (2.27)	33%
WHOQOL-BREF				
Quality of Life	3.7 (SD 0.45)	3.7 (0.64)	4.0 (0.53)	108%
Satisfaction with Health	2.4 (SD 0.73)	3.0 (0.93)	2.7 (0.88)	113%
Enjoyment of Life	3.3 (SD 1.03)	3.3 (0.88)	3.9 (0.83)	118%
Life is Meaningful	3.7 (SD 1.16)	3.7 (1.16)	4.1 (0.64)	111%
Concentration	3.6 (SD 0.73)	2.7 (0.70)	3.3 (0.70)	92%
Activities of Daily Living	2.6 (SD 0.90)	3.6 (0.73)	3.4 (0.73)	131%
Personal Relationships	3.3 (SD 1.03)	3.1 (0.83)	3.6 (1.18)	109%
Negative Feelings	3.3 (SD 0.70)	3.0 (0.53)	3.1 (0.64)	94%

Quality of Life Measures. Overall, participants showed improvement in 6 of the 8 quality of life metrics (Table 5). The areas of greatest improvement were in the activities of daily living, enjoyment of life and satisfaction with health. Having a meaningful life, personal relationships and quality of life also showed improvement. There was no improvement in concentration or negative feelings. However, qualitative data in the form of open-ended questions did show improvement of negative feelings.

Participants reported feeling a decrease in their anxiety and/or depression when responding to open-ended survey questions. Participants wrote “All of my symptoms have decreased – anxiety, mood. Helped keep me distracted from using when I had a hard time”, “Yoga decreased my anxiety and depression. It decreased my anger, sadness, and helped me forgive myself.”, “Yoga increased my mood and positivity. My depression has reduced and

reduces each session.” Two participants reported increased awareness. Other participants reported increased motivation, feelings of accomplishment, feeling healthier, and a decrease of physical pain. One participant wrote “I had a lot of physical pain in my back. Now the pain is minimal.” There were no reports of increased symptoms of any kind including pain, anxiety, depression or stress.

Participant Perspectives

Each week, participants related stories of how they accessed what they learned in the sessions and applied it in real life situations with positive personal results. A participant shared that she became aware of how much self-harm, such as negative thinking, sabotaging healthy relationships and past use of opioids is a part of her life “almost 99%”. She has made a commitment to start reducing that amount. Another participant expressed she had a very stressful week with everything “coming at me” and that one of these events would have “led me to use” but she was able to manage through it remembering the practice of non-harming. Another participant recognized his self-sabotaging nature and has started to think about the future and what direction he wants his life to go. A participant discussed how he has always allowed people to tell him what to do. He connected this behavior with his “getting into trouble with drugs.” He stated, “This is a major insight for me, and I am not going to let it happen anymore now that I know”. Another participant shared that people at work have stated they appreciate how he has changed reporting that he was “more patient”. A participant shared a story of how he told his friends who were using that he could not hang out with them anymore; “My path is different from yours now”. One of those friends approached him and said that he saw how much he changed since starting yoga and that he wanted to change too. He is now in a MAT program and plans to attend the next round of sessions. Multiple participants shared they

would be using without these sessions. These narratives are interconnected with improvement of the participants quality of life, enjoyment of life and personal relationships.

When participants were asked “What was most valuable in participating in the sessions” the responses reflected positive behavioral changes. These changes ranged from feelings of motivation, accomplishment, decrease of symptoms such as anxiety and regulation of emotional affect. Participants stated “The breathing, the way I feel after. Especially how I feel deep inside.”, “Yoga has been beneficial to decrease anxiety and improve my mood. I always left group feeling better.”, “I am now questioning my actions, where before I acted first. Now I try to stop and think ‘What is the best way to handle the situation?’” and “Yoga has helped me leave depression behind and live a more positive life.”

Therapist Perspectives

Both therapists who led the yoga sessions reported participant anxiety, depression and pain complaints at the beginning of the project. By week 6 they reported a decrease of anxiety and pain for the participants. By week 8 participants reported cessation of long-standing pain in their necks and backs. Both therapists reported an increase in participant accountability related to their behaviors around relapse, recovery and interpersonal relationships with friends, family and co-workers. Both noted participants increased self-care behavior such as introspection and exercise. Therapists reported stories of how participants practiced yoga between sessions with weekly you-tube yoga sessions and by practicing what they had learned.

Therapists reported an increase in their confidence and ability to lead and modify the sessions in response to participant energy and needs. One therapist stated, “It is a special relationship, much different than traditional talk-therapy and responses are more immediate and

obvious”. Another therapist stated, “Many were able to get into their bodies and able to learn ways to cope and process feelings”.

Therapists recommended increasing the time of the sessions to allow for more poses, experiential processing and psychoeducation. They recommended having the sessions later in the day to accommodate for work schedule and traffic issues. Therapists agreed to continue the sessions with the recommended changes.

Missing Data

We successfully obtained all data for the baseline, 6-week and 12-week assessments. There was no missing data for this quality improvement project.

Discussion

Group yoga sessions for MAT clients demonstrated increased attendance at yoga sessions as compared to their prior attendance in traditional BH talk-therapy sessions. Participants practiced the poses, breathwork and moral precepts outside of the group. Participants in a traditional talk-therapy setting do not generally have access to this skillset with the exception of limited breathwork education if provided by the therapist.

The variation of opioid cravings as reported on the scale demonstrates the independent experiences of those with substance use disorder. Yoga was effective in the reduction of cravings for all those reporting cravings at baseline with the exception on one participant who reported a slight increase about the desire to use if they were in an environment that reminded them of past drug use. The OCS assessment tool is correlated with a 17% risk for retuning to use for every 1-unit increase in the score of the associated question. In our project, changes in the Opioid Craving Scale decreased by 0.9 for the cravings 1.8 in likelihood of use and 1.5 in decrease of desire to use. When applying the 17% risk of return correlation, these decreases are indicative of

reduction in return to opioid use. The yoga intervention decreased craving, desire, and likelihood of use. Since yoga is a tool that the participants can use anytime, this intervention can support their recovery long term.

According to participants, positive change of behavior was acknowledged by friends, family members and co-workers. One participant secured a job “with a real living wage” despite a prior history of convictions. All participants signed up to continue sessions beyond this quality improvement project.

The results from the Opioid Craving Scale show a decrease of cravings, desire and likelihood of use. The quality of life metrics showed most improvement in activities of daily living, enjoyment of life, satisfaction with health and experiencing a meaningful life. Our data is in agreement with the findings in the study by Shaffer et al. (1997) for both increased retention and qualitative data that yoga was pivotal in participants recovery. Our findings of decreased anxiety and depression were likewise compatible with results in the study by Marefat et al. (2011).

All types of therapeutic modalities are important to recognize in the treatment of substance use disorder and recovery since an individualized approach to recovery is important. Talk-therapy (e.g.: cognitive behavioral therapy, psychodynamic therapy, interpersonal therapy), 12-step programs, methadone and buprenorphine programs all have a place in treatment. Strategies that support personal identity is imperative in the treatment of substance use disorder and other behavioral health challenges such as post-traumatic stress disorder, grief, depression and anxiety. In yoga, who we truly are is understood as the true Self. This Self never changes. We may do things that pull us away from our true Self, but we can change those behaviors to reunite with who we truly are. One participant stated “This is the first time I have not felt like an

addict. Drugs are what I did, not who I am.” Another participant, through the exercise related to a yama reconnected to his love of art and stated “I forgot I was an artist. I have not drawn since I was a kid. I forgot how much I enjoyed it”. Yoga provides the space to deconstruct those parts of ourselves that are not in our best interest, reunites us to who we really are and then provides tools through direct experience to move forward. Re-integration with the Self, through direct experience is a key component in somatic therapy, which is supported through a consistent yoga practice.

Pain was not a measured aim of this quality improvement project, but it is worth noting the reports from multiple participants of reduction and cessation of pain. For future projects and research, the assessment of pain is an important metric to include. The reduction of pain may affect participant responses to quality of life questions.

Interpretation

The integration of yoga into the MAT program at the community health center improved BH attendance and overall MAT program retention. Providing yoga as a somatic therapy engaged and supported participants in recovery by reducing setbacks, anxiety and providing life skills. We learned that patients in a medication assisted treatment program are eager to try different modalities to support their recovery. By participant reports, yoga therapy provides support and life skills to support moving toward positive change, which was immediately transferrable to their life circumstances. Their participation in this project enhanced relationships with peers, family and co-workers. Insights about their behavior led to positive change in their interactions with themselves and others. Finding and keeping employment impacts those in recovery, their families and their communities. Participants expressed how yoga kept them from going back to using opioids especially in times of stress or anxiety. In their own words “I would

be using if not for yoga”, “I am not even sure how I even made it without yoga”, “Yoga has changed my life”.

Replication of this process is possible with adequate space, registered yoga teachers who are licensed therapists, a supportive organization and a \$1,000 start up budget for mats, blocks, blankets and token items to give to participants. Group therapy sessions are reimbursed by insurance companies and by Medicaid. The reimbursement rates are less than for individual psychotherapy. Unfortunately, at this time, Medicare does not reimburse for group therapy even though it is the gold standard of evidence-based practice for those in recovery. Barriers to attendance included work schedules and illness. By providing multiple sessions at diverse times, a variety of yoga styles and drop in sessions, attendance may be enhanced.

Psychiatric Mental Health Nurse Practitioners (PMHNP) and other professions that have the skills to prescribe, facilitate psychotherapy and teach yoga, are positioned perfectly to provide this type of intervention. These providers can facilitate the somatic therapy session, provide psychotherapy and manage MAT prescriptions all within the context of one visit. This approach to care would decrease the cost to the patient by eliminating separate visits required for their behavioral health intervention and prescriptions. This is a perfect example of an efficient health care model bridging medical and behavioral health. Not only would it enhance patient revenue savings, but it would increase provider productivity since the provider could see patients in those freed up appointment slots resulting in increased revenue to the organization. In addition, the provider can provide care for up to 8 patients (per insurance guidelines) in a group setting. This would translate into cost savings to the insurance companies, Medicare and Medicaid while providing care that leads to gainful employment, decreased incarceration and intact family structures. Training for this type of care may be initiated in PMHNP and other

health care education programs and/or supported by organizations through grants and patient revenues. This approach is warranted from both a population health and economic perspective.

Provider recruitment is difficult in Western North Carolina and even more so in the rural regions. Perhaps there will be increased interest in working for this organization for those providers/yoga teachers who have a strong passion for this work. Funding for this work will continue to be supported by the organization through grants, contracts and patient revenue.

Limitations

Our project had several limitations. As in other yoga studies, sample sizes were small making statistical analysis difficult and decreasing generalizability. All participants in this project were Caucasian and from a low socio-economic status. It is unknown if the results were affected by the size of the group, the therapist leading the group or the personal dynamics of patients in a particular group. Additionally, there are no known standards for how long a session should be, the number of times one should attend or what duration of time is necessary to achieve optimum results. Data was not collected for amount of time the participant was using a substance, the frequency of use, or time on MAT. Data was not collected on whether or not buprenorphine doses were changed during the course of the project other than reports from some participants that they had doses changed from time-to-time. For the purpose of this project, sessions were free. Requiring a fee moving forward may change attendance results as well.

Conclusions

Medication assisted treatment programs have low retention and even lower behavioral health attendance. Setbacks are common resulting in patient and provider disappointments. Our project has implications for continued exploration of alternative modalities to support recovery and treat other behavioral health challenges. It is cost effective, efficient and as shown in this

small study can result in positive life changes in a short period of time. Yoga as an intervention for recovery is a desirable modality substantiated by the fact that all participants have signed up for the next series of sessions and request multiple offerings during the week.

Our findings have implications for practice in the field of recovery. While attendance for behavioral health visits for recovery is variable, a therapeutic modality which supports internal change and insight in a short period of time is desirable. Somatic modalities, like yoga, in the field of behavioral health provides numerous opportunities for innovative behavioral health programs.

Somatic therapy, particularly those with yoga interventions have been researched and shown to be effective for many diagnoses in the DSM. This quality improvement project likewise showed improvement of depression, anxiety and stress which act as triggers for setbacks. The greater number of tools at the disposal for those struggling with substance use disorder, the greater the chance of emotional regulation, decreased cravings and prolonged recovery.

Next Steps

On a local level, this project was the starting point for further somatic therapy at the organization. Since the inception of this project, construction began on a somatic therapy center at the organization's main campus. This center will host a yoga studio capable of providing yoga psychotherapy for patients and the community at large. The organization will expand somatic therapy beyond recovery and offer sessions for PTSD, depression, anxiety, stress reduction and other behavioral health challenges. Therapists participating in the program are continuing this work. Additional therapists are obtaining certification in this modality to expand this work to the agency's other centers, some in remote rural locations.

Providers with training and experience in this modality may lead the effort of expanding this type of program into other health care organizations by providing consultative services and training. Somatic therapy, particularly yoga may be used in behavioral health centers, pain centers, oncology centers, medical facilities, schools, and jails. A collaboration of Area Health Education Centers (AHEC), nursing organizations and health care organizations can bring this work into the communities they serve. With a greater number of people accessing these services, increased research and quality improvement programs can be implemented with more significant data resulting. Data collection is needed to demonstrate the effectiveness of somatic therapy and yoga in particular. In addition, longitudinal studies are needed to see if this modality dissipates or strengthens over time. The research in this area is lacking.

The sustainability of quality improvement initiatives related to yoga as a therapeutic intervention ultimately depends on behavioral health providers ability to direct time and attention to these types of efforts. Sustainability will be influenced by health care policy and finance, availability of funding and the desire to look at alternative sources of health care until research and quality improvement projects support yoga as a mainstream evidence-based practice. Support for research needs to come from federal, state and local resources. Interdisciplinary collaboration can enhance these objectives.

Bringing yoga interventions to schools in Western North Carolina as a prevention service for children is a logical next step. Yoga builds resiliency. Youth are struggling with anxiety, depression, low self-esteem, suicidal ideation and as we have all seen across the nation, homicidal behaviors. Unfortunately, there are misconceptions in certain areas of our country that yoga is a religion and not to be offered in schools (e.g. yoga is banned from schools in Alabama). Communities need to be educated about the potential benefits of yoga as a therapeutic modality

to provide tools for youth to manage the stress and peer pressure they confront on a daily basis.

Our culture should be open to all possible sources of support to enable our youth to be resilient in these difficult times.

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References

- Advanced Recovery Systems. 2019. How much does drug rehab cost? Retrieved from <https://www.drugrehab.com/treatment/how-much-does-rehab-cost/>
- Amato, L., Minozzi, S., Davoli, M., & Vecchi, S. (2011). Psychosocial combined with agonist maintenance treatments versus agonist maintenance treatments alone for treatment of opioid 15 dependence. *The Cochrane Collaboration*. John Wiley & Sons, Ltd.
- Ball, J. & Ross, A. (1991). The effectiveness of methadone maintenance treatment: Patients, programs, services, and outcome. New York, NY, US: Springer-Verlag Publishing.
<http://dx.doi.org/10.1007/978-1-4613-9089-3>
- Chalana, H., Kundal, T., Gupta, V., & Malhari, A. (2016). Predictors of Relapse after Opioid Detoxification during 1-Year Follow-Up. *Journal of Addiction*. doi: [10.1155/2016/7620860](https://doi.org/10.1155/2016/7620860)
- Cisse, A., Giles, C., & Salloum, I. M. (2017). Yoga in the yard. *Psychiatric Services*, 68(9), 980–980. <https://doi.org/10.1176/appi.ps.68901>.
- Cramer, H., Lauche, R., Langhurst, J. & Dobos, G. (2013). Yoga for depression: A systematic review and meta-analysis. *Depression and Anxiety*, 30, 1068-1083.
- Curtis, F., Luo, F. Xu, L. & Zhou, C. 2016. The economic burden of prescription opioid overdose, abuse and dependence in the United States, 2013. *Med Care* 54(10) 901-906. doi: [10.1097/MLR.0000000000000625](https://doi.org/10.1097/MLR.0000000000000625)
- Drummond, C. & Perryman, K. (2007). Psychosocial interventions in pharmacotherapy of opioid dependence: A literature review. Section of Addictive Behaviour, Division of Mental Health. St George's University of London.

- Dwyer, J., O’Keefe, J., Scott, P., & Wilson, L. (2012). Trauma and young children – a caring approach project. Women’s Health Goulburn North East. Retrieved from <https://www.whealth.com.au/documents/work/trauma/LiteratureReview.pdf>.
- Emerson, D. (2015). *Trauma-Sensitive Yoga in Therapy*. New York, London. W.W.Norton & Company.
- Fischer G., Nava F., Stover H. (2012). Outcomes of opioid-dependence treatment across Europe: Identifying opportunities for improvement. *Heroin Addiction and Related Clinical Problems*. 14:39–50.
- Florence, C., Luo, F., Xu, L., & Ahou, C. (2018). The Economic Burden of Prescription Opioid Overdose Abuse and Dependence in the United States, 2013. *Med Care*. 54(10); 901-906.
- Gale, A. (Jul-Aug 2016). Drug company compensated physicians role in causing america’s deadly opioid epidemic: When will we learn? *The Journal of the Missouri State Medical Association*. 113(4): 244–246. Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6139931/>.
- Gard, T., Noggle, J., Park, C., Vargo, D. & Wilson, A. (2014). Potential self-regulatory mechanisms of yoga for psychological health. *Frontiers in Human Neuroscience*. 8(770). Doi 10.3389/fnhum.2014.00770.
- Kakko, J., Alho, H., Baldacchino, A., Molina, R., Nava, F., Shaya, G. (2019). Craving in opioid use disorder: From neurobiology to clinical practice. *Frontier Psychiatry*. <https://doi.org/10.3389/fpsy.2019.00592>
- Kamradt, J. (2017, January). Integrating yoga into psychotherapy: The ethics of moving from the mind to the mat. *Complimentary Therapies in Clinical Practice*. 27, 27-30.

- Lander, L., Downs, K. C., Andrew, M., Rader, G., Dohar, S., & Waibogha, K. (2017). Yoga as an adjunctive intervention to medication-assisted treatment with buprenorphine+naloxone. *Journal of Addiction Research & Therapy*, 08(06). <https://doi.org/10.4172/2155-6105.1000354>.
- McCauley, J., Killeen, T., Gros, D., Brady, K., & Back, S. (2012). Posttraumatic stress disorder and co-occurring substance use disorders: Advances in assessment and treatment. *Clinical Psychology*, 19(3). Doi:10.1111/cpsp.12006.
- McHugh, K., Fitzmaurice, G., Carroll, K., Griffin, M., Hill, K., Wasan, A., and Weiss, R. (2014). Assessing craving and its relationship to subsequent prescription opioid use among treatment-seeking prescription opioid dependent patients. *Drug Alcohol Dependence*. December 1; 0: 121–126. doi:10.1016/j.drugalcdep.2014.10.002.
- Marefat, M., Peymanzad, H., & Alikhajeh, Y. (2011). The study of the effects of yoga exercises on addicts' depression and anxiety in rehabilitation period. *Procedia - Social and Behavioral Sciences*, 30, 1494–1498. <https://doi.org/10.1016/j.sbspro.2011.10.289>.
- National Academies of Sciences, Engineering, and Medicine. 2019. *Medications for opioid use disorder save lives*. Washington, DC: The National Academies Press. <https://doi.org/10.17226/25310>.
- National Institute of Health: National Institute on Drug Abuse (2018). Prescription Opioids and Heroin. Retrieved from <https://www.drugabuse.gov/publications/research-reports/relationship-between-prescription-drug-abuse-heroin-use/introduction>.
- National Institute of Health: National Institute on Drug Abuse (2018). Comorbidity: Substance Use Disorders and Other Mental Illnesses. Retrieved from

<https://www.drugabuse.gov/publications/drugfacts/comorbidity-substance-use-disorders-other-mental-illnesses>

Petersen, A., Peters, S., Richard, M., & Whites, A. (2018) State legislative responses to the opioid crisis: Leading examples. *Journal of Health & Life Sciences* 2(2), 30-69.

Retrieved from https://www.healthlawyers.org/find-a-resource/HealthLawHub/Documents/Opioids/18_Journal_February_FINAL.pdf.

Popowitz, Coral. (2014). Therapists' perspective on the use of somatic interventions in childhood trauma. Retrieved from Sophia, the St. Catherine University repository website:

https://sophia.stkate.edu/msw_papers/377.

Sarkar, S., & Varshney, M. (2017). Yoga and substance use disorders: A narrative review. *Asian Journal of Psychiatry*, 25, 191–196. <https://doi.org/10.1016/j.ajp.2016.10.021>.

Shaffer, H. J., LaSalvia, T. A., & Stein, J. P. (1997). Comparing Hatha yoga with dynamic group psychotherapy for enhancing methadone maintenance treatment: A randomized clinical trial. *Alternative Therapies In Health And Medicine*, 3(4), 57–66. (9210777).

Substance Abuse and Mental Health Service Administration (SAMSHA). (2019). Medication-Assisted Treatment (MAT). Retrieved from <https://www.samhsa.gov/medication-assisted-treatment>.

Timko, C., Schultz, N., Cucciare, M. Vittorio, L. & Garrison-Diehn, C. 2016. Retention in medication-assisted treatment for opiate dependence: A systematic review. *Journal of Addictive Diseases*.35 (1), 22-35.

US Department of Health and Human Services. October 26, 2017. HHS acting secretary declares

- public health emergency to address national opioid crisis. Retrieved from <https://www.hhs.gov/about/news/2017/10/26/hhs-acting-secretary-declares-public-health-emergency-address-national-opioid-crisis.html>.
- Van der Kolk, B., McFarlane, C. & Weisaeth, L. (1996). Traumatic stress: The effects of overwhelming experience on mind, body, and society. New York: Guilford Press.
- Van Der Kolk, B., (2014). *The body keeps the score*. New York, New York, Penguin Books.
- Volkow, N. & Wargo, E. (2018). Overdose prevention through medical treatment of opioid use disorders. *Annals of Internal Medicine*. 169(3):190-192. doi: 10.7326/M18-1397.
- Weber, K. & Sculthorp, B. (2016). The yamas and niyamas in population health. *Yoga Therapy Today*. Summer p. 29-30.
- West, J., Liang, B. & Spinazzola, J. (2017, May). Trauma sensitive yoga as a complementary treatment for posttraumatic stress disorder: A qualitative descriptive analysis. *International Journal of Stress Management*. 24(2) p. 173-195. doi:10.1037/str0000040.
- Woody, G., Luborsky, L., McClellan, T., O'Brien, C., Beck, A., Blaine, J., Herman, I., & Hole, A. (1983). Psychotherapy for opiate addicts: Does it help? *Archives of General Psychiatry*. 40; 639-645.
- Woodyard, C. (2011). Exploring the therapeutic effects of yoga and its ability to increase quality of life. *International Journal of Yoga Therapy*. Jul-Dec; 4(2): 49–54. doi: 10.4103/0973-6131.85485: 10.4103/0973-6131.85485.
- World Health Organization. (2019). Health statistics and information systems. WHOQOL: Measuring quality of life. Retrieved from <https://www.who.int/healthinfo/survey/whoqol-qualityoflife/en/indexx2.html>.