Research Synthesis of

Yoga as an Intervention to Reduce Mental Health Symptoms

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Introduction

Mental illness is a common and severe health problem in the United States. The National Institute of Mental Health (2020) reports that one in five adult's lives with a mental illness. For this research synthesis, individuals with mental health symptoms from a diagnosis such as Post-Traumatic Stress Disorder (PTSD), Major Depressive Disorder (MDD), Dysthymia, Psychosis, and Mood Disorders will be considered. Mental disorders are categorized by the National Institute of Mental Health (NIMH) as Any Mental Illness (AMI) and Serious Mental Illness (SMI). AMI are those which include mental, behavioral, and emotional disorders, which range in severity from no impairment to mild and severe impairment. Serious Mental Illness (SMI) are considered disturbances in emotions, behaviors, and mental health, which seriously impair individuals' functioning and burden families and societies. Most times, individuals with SMI become disabled as they struggle with such conditions.

Statistics from NIMH in 2017 report that 46.6 million adult individuals 18 years and older in the United States reported AMI representing 18.9% of the total adults in the US. From this number, 25.8% (the most prevalent) were among young adults 18-25 years of age, 22% were 24-49 years of age, and 13.8% were 50 years of age and older. AMI affects women (22.3%) more than men (15.1%). SMI in 2017, affected 11.2 million adults 18years or older in the US. This number represents 4.5% of all adults, higher among women 5.7%, and 3.3% for men. Young adults 18-25 years of age represent 7.5% compared to adults 26-49 years, 5.6%, and older 2.7% (see Table 3). The data indicates a high prevalence of mental illness among adults representing

23.4% of the total adult population in the US in 2017. The data informs a need for effective interventions to treat such disorders.

Another serious issue that affects the functioning and treatment of this population is economic status and stigma. Foster et al. (2018) report a high correlation between economic status and the incidence of mental health for this population. High social-economic status, lack of empathy, and prejudice towards individuals with mental illness (MI) increase stigma towards this population. Frequently people with mental illness are considered weak, defective, and struggle to find appropriate care, employment, and independence. People with low economic status have a higher propensity for mental illness because of "poor nutrition, lack of access to exercise, psychosocial stressors, poor social networks" (Ward & Druss, 2019, p.759), and difficulty accessing health care. Therefore, a differential in socioeconomic status continues to foster inequality among this population increasing isolation and homelessness.

Incarceration of individuals with MI and a lack of education of law enforcement agents regarding the presentation and treatment of individuals with MI exacerbates incarceration disparity for this population. According to West et al. (2015), research indicates that self-stigma among individuals with MI, produces poor outcomes of treatment and promotes engagement in anti-social behaviors that contribute to incarceration. Thomas et al. (2019) report numerous challenges that this population experiences when reintegrating into the community after being released from jail. Thomas et al. further propose interventions based on a "restorative justice model" where reinstating appropriate roles need to be achieved to improve practice and achieve policy change.

The problem of MI is of social concern affecting individuals, families, communities, and the social work profession; considerable attention is needed to decrease its impact. MI affects all systems involved, such as the individual's mental, emotional, and physical health, family members, relationships, legal, occupational, and aspects of the individual's life. The treatment approach must be integrative and multidisciplinary to addresses all these components for the person to achieve a more functional and better quality of life. Person with a MI need treatment to improve functioning. The treatment of MI usually involves a combination of psychotropic medications to stabilize symptoms and other therapeutic interventions like psychotherapy, groups, and a continuum of care to maintain emotional and mental stability. However, such interventions have evidenced poor outcomes and high recidivism. Psychotropic medications often produce negative side effects and frequently need to be changed as they stop working when the body develops a tolerance. On the other hand, therapeutic interventions, when discontinued, do not have long-lasting effects (Yerushalmi, 2017). Alternative and effective interventions need to be researched and integrated into the treatment of MI to achieve effective outcomes.

Research Synthesis Question: Is Yoga an Effective Intervention to Reduce Mental Health Symptoms?

Yoga, Thai-chi, qigong, Dance and Movement Therapy (DMT), Dancing Mindfulness, Dance and Music Movement (DMM), and mindful awareness in body-oriented therapy (MABT) have been researched through quantitative studies as creative, mindful movement interventions which evidence a reduction in mental health symptoms (Carleton & Gabay, 2012). Such interventions have been used to effectively treat depression, anxiety, bipolar, post-traumatic stress disorders (PTSD), substance use disorders (SUD's), schizophrenia, among other mental

ailments. The following research synthesis mainly focuses on yoga as a mind-body intervention to reduce symptoms of mental illness.

The Beck Depression Inventory categorizes severity of depression based on symptoms such as feeling sad, discouraged about the future, feeling like a failure, not enjoying activities which used to cause pleasure, feeling guilty, deserving to be punished, disliking of self, blaming of self, suicidal thoughts, hopelessness, crying a lot, among other depressive symptoms (see Table 6). Anxiety symptoms such as worry, fear, muscle tension, twitches, and sleep issues, among others, are mentioned in the Hamilton Anxiety Scale (see Table 5).

The body and the mind are intimately interconnected and affect each other directly. Dissociated traumatic memories which frequently underly mental health processes can be reached and healed by the body through a bottom-up approach (Levine & Mate, 2017). By moving mindfully, expressing through creative movement, yoga, and dance in a sacred safe space with trained facilitators and observing witnesses, such memories can be reached. Following up movement sessions with the processing of emotions and insights through narrative, poetry, and art, in a group setting, has proven to be an effective intervention to access to such memories in a non-threatening way and give a pathway to meaning and healing (Auty, et al., 2017; Chyle et al., 2020; Chiesa & Serretti, 2014; Cramer et al., 2013 & 2018; Davis et al., 2020; Dick et al., 2014; Kinser at al., 2014; Klatte et al., 2016; Mitchell at al., 2014; Niles et al., 2018; & Price et al., 2019).

Database Searched / Methods Utilized to Search Quantitative Articles

A review of research literature was conducted to find articles that address the utilization of yoga as an intervention to decrease mental health symptoms. In order for the article to be

included in this quantitative research synthesis, the article must have met the following criteria: *(a)* to have been published in the English language; *(b)* included in the Barry University Library Summons database such as PsychInfo, PsychArticles, Academic on File, DSM-5, PubMed, and Social Work Journals; *(c)* articles must be published between the years of 2010 – 2020; *(d)* must be full text articles; *(e)* the sample of the population under study had some type of mental health diagnosis and symptoms at the time of the study; *(f)* the intervention utilized in the study must meet criteria for a mindful movement approach such as yoga; *(g)* use a quantitative design such as randomized control trials (RCT) to evaluate the intervention; and *(h)* measure outcomes related to mental health and symptoms of MI such as symptoms of depression, stress, anxiety, rumination, health-related quality of life (QOL), mindfulness, self-compassion, symptoms of PTSD, positive and negative symptoms of schizophrenia, anger, and sleep disturbances. Articles were excluded from this synthesis because they *(a)* were a systematic review and or meta-analysis; *(b)* were written in a different language other than English; *(c)* did not evaluate the proposed intervention of mindful movement in the form of yoga, and *(d)* did not include selected outcome measures.

Critical Analysis of the Evidence Related to Yoga as an Intervention to Reduce Mental Health Symptoms

In this section, evidence of the utilization of yoga as an intervention to reduce mental health symptoms will be analyzed. The five research studies chosen for this synthesis will be carefully reviewed.

Kinser et al. (2014), in their quantitative research study, analyses the viability and effectiveness of yoga as a "mind-body therapeutic modality" to decrease symptoms of Mayor

Depression Disorder (MDD) in women and increase their acceptance towards the intervention. The yoga intervention in this study was utilized to complement regular pharmacological and therapeutic interventions. Kinser and colleagues argue that therapy and psychotropic medications are not enough by themselves to achieve recovery. Frequently, depressive symptoms persist despite adhering to proposed protocols for these interventions. For their research design, the authors utilized a longitudinal randomized controlled trial RCT with a mixed-methods approach with embedded design. The selected sample included 27 women recruited by posting flyers in healthcare providers' offices and other public places from the east coast of the US. The participants continued their daily activities as usual including therapy sessions and taking medications as prescribed for the eight weeks length of the study. Women were screened and assessed on a face to face visit where baseline study measures were obtained. Inclusion criteria were women over the age of 18, with MDD or Dysthymia, with moderate to severe depression above 9.0 measured with the PHQ-9 scale. Two groups were assigned in the study: a yoga group and a health education group. The first group engaged in a 75-minute gentle Hatha yoga class facilitated by an experienced practitioner who followed a manual incorporating breathing, meditation, poses, and relaxation practices designed explicitly for depression. Besides, the yoga group included a home practice with a DVD or handouts to complete with pictures of the yoga poses. The second group consisted of a health education group of 75 minutes, facilitated by a nurse. Measures were obtained after eight weeks as well as a year following the study. The data were analyzed using standardized outcome measures. An extended follow-up period and separate mixed-effects linear models were used to compare changes in the means across time between the yoga and health education groups for the measures of depression, stress, anxiety, rumination, and

health-related quality of life. Findings show a statistically significant difference between the groups from baseline. Even though both groups showed improvement in depressive symptoms, the yoga group showed decreased anxiety, stress and rumination, and depressive symptoms after eight weeks, and a sustained improved effect over one year. The significance of this study indicates that therapeutic interventions and psychotropic medication treatments need to be administered consistently in order to show positive effects. On the contrary, the use of yoga as an intervention shows effective sustained benefit in decreasing symptoms of depression even if participants are no longer engage in yoga practice after eight weeks of intervention exposure. Limitations of this research include the fact that sample size decreased at the one-year assessment, there was a lack of standards to report yoga interventions, and the difficulty in generalize to men as the sample in the study included only women.

In another study, Falsafy (2010) compared both mindfulness and yoga interventions to decrease symptoms of anxiety and depression among a group of college students. In addition to continuing regular activities, therapy, and medications, the author included three groups in the study: *(a)* a mindfulness group who utilized various practices of breathing, focusing, and self-compassion; *(b)* a yoga group which consisted of a gentle Hatha yoga training, and *(c)* a control group who did not receive any training. The research design was based on a stratified, randomized, and controlled repeated measures for the three groups. The sample included a total of 90 students, males, and females chosen from 11,500 undergraduate colleges from mid-size universities in the southeast US assigned randomly to the groups in equal numbers of 30. To participate in this study, participants had to have a diagnosis of depression and or anxiety. The intervention consisted of an 8-week training for mindfulness and yoga groups at 75 minutes per

week. The outcome measures were focused on depression, anxiety, and stress symptoms. Depression, anxiety, stress symptoms, self-compassion, and mindfulness were measured at baseline, at week 4, at week 8, and at week 12 utilizing scales such as the Beck Depression Inventory, Hamilton Anxiety Scale, Student Life Stress Inventory, Self-compassion Scale, and the Cognitive and Affective Mindfulness Scale-revised. Other statistical analyses, such as descriptive statistics, multivariate analysis of variance, and Bonferroni corrections, were used to analyze the data. The findings indicate that both yoga and mindfulness are cost-effective treatments in reducing anxiety, depression, and stress among students as they showed a significant decrease in symptoms from baseline to follow-up compared to the control group. Changes in self-compassion scores, however, were only significant in the mindfulness group. A strength of the study was the inclusion of a control group and having follow-up sessions. Limitations were noted as the fact that 86.4% of the participants were females, which would affect the ability to generalize the results to males.

Mitchell et al. (2014), conducted a research study with the purpose to implement yoga as an effective alternative intervention in the treatment of PTSD. They implemented a pilot study of a randomized controlled trial comparing a 12-session Kripalu-based yoga intervention to a control group with no intervention, to decrease PTSD symptoms with possible comorbid symptoms of depression and anxiety. The participants included 30 adults (18-65 years of age) women veterans and civilians. Participants were non-blinded randomly assigned to groups by using the Microsoft Excel random numbers function. Twenty participants were assigned to the Kripalu yoga group and 18 to the control group. As an inclusion criterion, all women had a positive diagnosis of PTSD measured with the Primary Care PTSD screen (PC-PTSD). Women

who had participated in a yoga class in the past six months were excluded from the study as were women who had a substance-dependence problem in the past three months and were a current suicidal or homicidal risk. Participants were given two options to attend twelve 75-minute-long sessions for either 6 or 12 weeks. Kripalu yoga, a form of Hatha yoga, consists of mindful movement in the form of physical poses and breathing exercises that focus on bodily sensations and emotions that arise during the practice. The facilitator for the yoga group was a certified yoga instructor following a curriculum designed by the National Yoga Alliance. The data was collected with several scales to measure different symptoms; *(a)* The PC-PTSD scale to measure past month PTSD symptoms; *(b)* The Trauma Life Events Questionnaire (TLEQ) measures self-reports of exposure to traumatic events; *(c)* The PTSD Checklist (PCL) measures symptoms such as re-experiencing, avoidance, and hyperarousal; *(d)* The CES-D was used to measure depression symptomatology and consists of four subscales, such as negative affect, positive affect, interpersonal symptoms, and somatic and vegetative activity; and *(e)* the State-Trait Anxiety Inventory (STAI) measures levels of anxiety. All these mentioned scales were completed at baseline, after the intervention, and a 1-month follow-up assessment. The PCL was also administered weekly. Findings suggested a significant decrease in both hyperarousal symptoms and re-experiencing anxiety symptoms. This decrease was observed in both groups, yoga, and control. The control group's change might be explained by completing the baseline assessment questionnaire where symptoms were normalized. However, results suggest that yoga is an effective intervention to decrease PTSD symptoms and that future research is encouraged to establish yoga as an evidence-based intervention for the alternative and complementary

treatment of PTSD. A limitation of the study is that participants were all women affecting the ability to generalize results to men.

In a longitudinal research study by Davis et al. (2020), in a randomized controlled clinical trial, compared a Holistic Yoga Program (HYP) and a Wellness Lifestyle Program (WLP) as effective interventions to improve symptoms of PTSD. The study is significant as it included a total of 209 participants of an average age of 50.6 years. 91.4% were veterans, 66% were male, and 61.7% white. 57.4% had partners, 54.1% were unemployed, and more than 50% had combat-related index trauma from which for 59.3% had occurred an average of 24.8 years before baseline. 75% of participants had had previous PTSD treatment, 75.1% were taking psychotropic medications, and 87.6% attended college. 86.1% did not have a history of traumatic brain injury (TBI), 80.9% did not have prior yoga instruction, and 84.2 % did not have meditation instruction before the study. All met a confirmed PTSD diagnosis from the CAP-5. The participants were randomly assigned to attend the yoga intervention two times per week for 16 weeks. The HYP consisted of yoga instruction, while the WLP consisted of didactics, discussions, and walking. All instruments utilized had demonstrated validity and reliability. The PTSD Scale (CAPS-5) was used to identify the presence or absence of the diagnosis. Secondary outcomes included four measures of specific PTSD symptoms such as anger, anxiety, depression, sleep, interoceptive awareness, self-compassion, spirituality, stigma, self-efficacy, pain, and functioning. Clients who had severe medical issues, active suicidal ideations, impairments of cognition, active psychosis, involvement in ongoing yoga classes or weekly relaxation practices were excluded from the study. Instruments utilized to measure symptoms during the study were PTSD scales (CAPS-5), and checklist (PCL-5). Findings determined that the HYP significantly decreased PTSD

symptoms and severity measure much more than the WLP intervention measured immediately after the treatment intervention. However, it did not show the same results at the seven-month follow-up after the intervention which concludes that yoga may be an effective complementary intervention with therapy and medications for the treatment of PTSD. The study's recommendations are to complete additional studies by adding social components or continuing HYP to sustain the mental health benefits of yoga over time. Limitations of this study were presented. Because participants were from the Midwest of the US, results may vary in other parts of the country across cultures. The high dropout rate of participants may also have affected the results.

Harner and Garfinkel (2010) researched the possibility of introducing a female gender-responsive movement intervention in jail and utilizing an Iyengar Yoga intervention to decrease anxiety, depression, and perceived stress among the participants. The participants were their own control as they completed the following self-administered instruments: The Beck Depression Inventory (BDI), the Beck Anxiety Inventory (BAI), and the Perceived Stress Scale (PSS). Such scales were administered at baseline (before intervention), and during treatment at 4, 8, and 12 weeks. Non-probability purposive sampling was utilized to select the 21 female participants. Participants chosen were all English-speaking females' inmates 35 years of age and older who has served at least three months of their sentences. Women excluded from this study, were those who had: *(a)* six months remaining of the sentence; *(b)* were pregnant or postpartum fewer than three months; *(c)* not medically cleared; *(d)* on suicide watch; and *(e)* received a disciplinary report the month before the intervention or posed a flight risk. Statistical significance of the data was analyzed by linear mixed effects to measure changes in mental health symptoms. The results

show a significant decrease in symptoms of depression over time, marginally significant reduction in symptoms of anxiety, and a decrease in stress for week four, which increased at week 12. The study answers the proposed synthesis question as it confirms that yoga is an effective intervention to decrease anxiety and depressive symptoms, in this case, for incarcerated women simultaneously improving their health outcomes. The limitation of the study is the small sample size, and further research is suggested to generalize the study to other populations.

The Synthesis "Answer" to the Research Question

Is yoga an effective intervention to reduce mental health symptoms? A thorough literature review was performed to find quantitative original research articles that answered the question. From the five randomized controlled research studies selected, all of them concluded that there is evidence that yoga is an effective intervention to decrease mental health symptoms related to Major Depressive Disorders (MDD), PTSD, Dysthymia, Mood disorders, Psychosis, anxiety, and perceived stress. All five studies incorporated yoga as a complementary intervention besides regular treatments that participants were already engaged in, such as therapy and psychotropic medications (treatment as usual). This fact allows both, researchers to observe both the benefits of yoga in changing outcome measures from baseline to end and follow-up times of the study, and to compare the effectiveness of the yoga intervention independently of the effects of medications and therapy on the control group with no yoga interventions.

From the yoga interventions, 2 of the studies utilized hatha yoga, a gentle form of yoga available to any participant with no previous practice. One of the studies did not clarify what kind of yoga was utilized as an intervention, making it difficult to reproduce the study. One study used Kripalu yoga (which is also a form of Hatha yoga), and one was based on Iyengar yoga,

which uses props to facilitate the poses and focuses on alignment, mindfulness, and meditation. All yoga practices in the five studies are described as gentle yoga and facilitated by certified instructors.

Two of the studies only had yoga groups, two had yoga and a control group, and one of the studies was a comparison between a yoga intervention and a wellness lifestyle program. One of the studies utilized a yoga group and a mindfulness group, both components of yoga practice, and both groups confirmed the question compared to the control group.

Most of the researchers' tools to measure the symptoms as outcome measures at baseline and after each intervention were evidence-based tools. The Beck Depression Inventory (BDI), CES-D, and Neuropsychiatric Interview MINI 6.0. were used to measure symptoms of depression. Beck Anxiety Inventory (BAI), STAI, and the Hamilton scale were used to measure anxiety. Scales such as PCL, PCL-5, PC, and CAP-5, were utilized to measure PTSD and its symptoms. TLEQ was utilized to measure exposure to trauma, and the PSS to measure perceived stress.

Two of the studies lasted 12 weeks, one eight weeks, and one 16 weeks. All studies independently of their duration showed significant improvement with the yoga practice after completion of the sessions. The longitudinal studies that had follow-ups after one year showed sustained improvement of symptoms even if the participants did not continue to practice yoga after completion of the study. Sustained improvement in mental health symptoms after some time indicates the importance of this finding. Traditional interventions such as therapy and medication interventions do not show continued positive effects after completion or cessation of the intervention.

In two of the studies, participants were comprised of both women and men, and in three studies participants were women only. The most extensive study involving 209 participants was both men and women, which confirmed that yoga is an effective complementary intervention to decrease mental illness symptoms.

The studies were held in a variety of setting: two occurred in the community, one in a university, one in jail, and one in a hospital unit. All settings came up with the same findings that yoga is an effective intervention, and when complemented with therapy and psychotropic medication, it can significantly reduce mental health symptoms in any of these settings.

This writer proposes further research that considers limitations presented in these studies as such as small samples size, different genders, geographic locations, sexual orientations, dropout of participants, socioeconomic status, a need for a more diverse sampling approach, and creating a standard to report on yoga interventions. In addition, it would be interesting to study how utilizing more structured styles of yoga as Ashtanga practice could benefit. Incorporating other components of a yoga practice such as breathing exercises (Pranayama) and yoga philosophy in further research, could inform in which ways specific yoga components can improve mental health symptoms in different settings.

Research synthesis is essential in application to clinical practice. There are evidence-based interventions that work and others that do not. When treating an individual or population with a presenting issue, it is vital to treat this issue with interventions that work based on research. Integrating evidence-based research and synthesis in clinical practice, effort, energy, and resources will be utilized efficiently and effectively.

Evidence-based effective interventions have been determined by the utilization of random control trials to produce such evidence. The research indicates which interventions are most effective in the treatment of specific ailments. It is not only accessible to us as social workers, but it is an ethical responsibility to utilize such effective interventions. There are several ways organizations could assist clinicians in synthesizing research for the benefit of the agency and the clients they treat. Some of these ways are: allowing time to dedicate to such research studies and implementation, hiring personnel with education and research experience, providing training to existing personnel regarding evidence-based practices that work, providing supervision and follow-up training, obtaining feedback from clinicians and clients regarding the effectiveness of the interventions, and supporting the researchers in implementing such organizational changes at the agency policy and procedural level.

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