

5-2016

Benefits of Exercise for Individuals in Remission from Substance Use Disorders

Tiffany Amdahl

St. Catherine University, amada0003@stthomas.edu

Recommended Citation

Amdahl, Tiffany. (2016). Benefits of Exercise for Individuals in Remission from Substance Use Disorders. Retrieved from Sophia, the St. Catherine University repository website: https://sophia.stkate.edu/msw_papers/554

This Clinical research paper is brought to you for free and open access by the School of Social Work at SOPHIA. It has been accepted for inclusion in Master of Social Work Clinical Research Papers by an authorized administrator of SOPHIA. For more information, please contact amshaw@stkate.edu.

Exercise and Recovery from Substance Use Disorders

Benefits of Exercise for Individuals in Remission from Substance Use Disorders

By

Tiffany Amdahl, LSW, LADC

MSW Clinical Research Paper

Presented to the Faculty of the School of Social Work St. Catherine University and the University of St. Thomas St. Paul, Minnesota in Partial fulfillment of the Requirements for the Degree of Master of Social Work

Committee Members

David Roseborough, Ph. D., LICSW, ACT

Bethani Lawrence, LADC, MS, LGSW

Michael Brunner, Ph. D., L.P.

The Clinical Research Project is a graduation requirement for MSW students at St. Catherine University/University of St. Thomas School of Social Work in St. Paul, Minnesota and is conducted within a nine-month timeframe to demonstrate facility with basic social research methods. Students must independently conceptualize a research problem, formulate a research design that is approved by a research committee and the university Institutional Review Board, implement the project, and publicly present the findings of the study. This project is neither a Master's thesis nor a dissertation.

Abstract

This study sought to explore how physical exercise impacts individuals in early remission from substance use disorders and explored which exercise interventions might be particularly conducive to supporting sustained remission. The purpose of this exploratory, qualitative study is to gain insight regarding the impact of exercise on early recovery from a substance use disorder. Qualitative interviews were conducted specifically by asking questions regarding an individual's involvement with exercise in early recovery and throughout remission, in what setting or settings exercise took place, types of exercise programs utilized, how exercise impacted mental and physical health from respondents' perspectives, and to what extent there were social aspects of their exercise routine. All of this was with a goal of better understanding physical exercise as a potential resource for those in early recovery in order to help professionals, such as social workers, to better support clients in capitalizing on this potential resource in achieving and maintaining sustained remission.

Acknowledgements

I would like to express sincere appreciation to my research chair, David Rosenborough, for his guidance and support. I would also like to thank my research committee members, Bethani Lawrence and Michael Brunner, for their guidance and recommendations throughout my research process. I am grateful for the time they have spent reviewing and providing supportive feedback.

I would also like to thank my classmates and family for all their support and patience with me throughout this process.

Table of Contents

Introduction.....6

Literature Review.....9

 Physical Benefits of Exercise.....9

 Benefits of Exercise on Mental Health.....10

 Exercise and Substance Use Disorder.....13

Conceptual Framework.....18

Methods.....20

 Research Design.....20

 Population and Sample.....21

 Protection of Human Participants.....22

 Data Collection.....23

 Data Analysis.....24

Results.....25

 Theme One: Benefits of Exercise.....26

 Theme Two: Drawbacks of Exercise.....31

Discussion.....34

 Physical and Mental Health Benefits.....34

 Social and Spiritual Benefits.....36

 Improved Health Choices.....38

 Strengths and Limitations.....39

 Suggestions for Future Research.....40

References.....43

Appendix A: Participant Consent Form.....46

Appendix B: Interview Questions.....48

Appendix C: Participant Invitation..... 49

Appendix D: Participant Flyer..... 50

Introduction

According to Substance Abuse Mental Health Service Administration (SAMHSA), in the last year about 4.2 million people in the United States, ages twelve and older, met the criteria for cannabis use disorder alone (SAMHSA, 2015). In addition, 855,000 people met the criteria for a stimulant use disorder, primarily due the use of cocaine (SAMHSA, 2015). Lastly, it was reported around 18 million people ages twelve and older have met the criteria for an alcohol use Disorder (SAMHSA, 2015). Substance use disorders affect many individuals and families.

Recovering from a substance use disorder is challenging and typically requires many changes to take place to lead to sustained remission. Most of these changes usually take place early in recovery. In this paper, early recovery is defined as the first six months. For the purpose of this study, recovery will be defined as meeting no symptoms of a substance use disorder in the past 12 months following meeting the criteria for a substance use disorder in the past (p. 510, American Psychological Association, 2013).

There are countless strategies to learn to live free from substance use disorders. Most of these strategies include behavior and lifestyle changes such as establishing a healthy support network, changing the way time is spent, learning effective coping strategies, participating in healthy recreational activities, becoming involved with things that were once important, and reconnecting with old friends or gaining new ones.

Social workers also sometimes participate with interdisciplinary teams for treatment programs for substance use disorders. The role of a social worker is to help individuals, families, or groups of people cope with challenges and life stressors in a variety of modalities. Substance use disorders inhibit individuals, group, or families'

ability to resolve problems and maintain healthy changes. In order to fully serve clients it is essential to be mindful of the strengths and barriers clients bring to their recovery and the challenges associated with being early in sobriety. Increased knowledge regarding healthy lifestyle changes and encouragement for involvement in those changes is beneficial in all treatment settings.

Exercise is one lifestyle change that is often suggested to be incorporated in early recovery. The powerful and positive effects exercise can have in relation to mental health are being discovered broadly. According to Read and Brown (2003), exercise has been shown to improve mood, decrease feelings of stress, assist with increasing one's support network, provide positive recreational activity, increase self-efficacy, and function as a means of coping (Ratey, 2008). All of these are necessary aspects to learn to successfully achieve remission from a substance use disorder.

In recent literature, there has been significant attention regarding the impact of exercise on mental health disorders. Consistent with the information above, in past literature, exercise has been shown to significantly decrease symptoms of depression and anxiety (Ratey, 2008). As a result of positive outcomes reflected in previous literature, some providers are prescribing exercise as an adjunct intervention. This literature seems promising in that attention to this topic is continuing to grow. Stathopoulou et al. (2006) reported from a previous study that individuals' symptoms of depression, feelings of anger, distrust, and experiences of stress decreased for those who exercise at least two times per week. If exercise has been influential on individuals' recovery from mental health disorders, how could it influence recovery from substance use disorders?

In comparison to the literature regarding exercise and mental health disorders, more broadly, there is limited research regarding substance use disorders and exercise, more specifically. According to Williams (2000), there are many different physical, mental, and social positive effects of exercise. However, this author draws significant attention to the fact that exercise has shown to be one of the most effective reducers of stress: a common challenge for those in early recovery. As a result of that alone, it appears exercise would be beneficial for individuals in early sobriety from substance use disorders.

Previous research also suggests exercise provides positive effects on moods, an opportunity for a social outlet, improves physical health, and functions as a means of coping. Although there is some literature available, there seems to be a need for more specific information to increase knowledge and understanding as to how exercise might impact adults in early remission from a substance use disorder.

This study aimed to identify how physical exercise impacts individuals in early remission from substance use disorders and explored which exercise interventions might be particularly conducive to supporting sustained remission. To gain insight regarding the impact of exercise on early sobriety and remission a qualitative, exploratory study was completed. Qualitative interviews were conducted specifically asking questions regarding an individual's involvement with exercise in early sobriety and throughout recovery, in what setting or settings exercise took place, types of exercise programs utilized, how exercise impacted mental and physical health from their perspective, and to what extent there were social aspects of their exercise routine. All of this was with the goal of better understanding physical exercise as a potential resource for those in early sobriety in order

to help professionals, such as social workers, to better support participants in capitalizing on this potential resource in achieving and maintaining sustained remission.

Literature Review

Many individuals have been told or even prescribed exercise and a healthy, balanced diet from a doctor or other professional for a number of reasons. According to The Centers for Disease Control and Prevention (2015), exercise has been shown to provide significant physical and mental health benefits. These benefits include reducing risk of cardiovascular disease, some cancers, type 2 diabetes, maintaining or losing weight, strengthening bones and muscles, improving mood, increasing healthy endorphins, increasing longevity of life, and improved quality of life.

Over the past decade, there has been significant research exploring the benefits of exercise on physical and mental health. However, there appears to be less research pertaining to the benefits of exercise for individuals in recovery from a substance use disorder, specifically. From the pre-existing literature reviewed, four main themes were identified: benefits of exercise, benefits of exercise on mental health, benefits of exercise for a person in recovery from a substance use disorder, and types of exercise interventions used for individuals with mental health disorders or in recovery from a substance use disorder.

Physical Benefits of Exercise

As stated by the President's Council on Fitness, Sports, and Nutrition (2015), less than five percent of adults achieve thirty minutes of physical exercise daily and only one in three adults achieve the recommended amount of physical activity per week. In

response to the lack of physical activity in adults and increased risk of health conditions, significant research has been conducted to address these concerns.

According to the World Health Organization (WHO, 2015), adults who exercise on a regular basis have decreased risk for hypertension, heart disease, stroke, diabetes, and some cancers. The WHO also reported additional benefits of physical activity consisting of improved mood, energy, cardiovascular health and fitness, bone strength, weight control, and reduced risks of falls (2015). The WHO also reported significant health benefits for children, adolescents, and older adults who participate in physical exercise daily. According to the WHO (2015), insufficient physical activity is one of the top ten leading causes for international mortality. This organization also reported that individuals who did not meet the recommended amount of physical exercise were at a twenty to thirty percent higher risk of mortality (2015).

The Mayo Clinic reported additional benefits that made significant impacts in people's daily life. According to the Mayo Clinic, physical exercise boosts energy levels, improves quality of sleep, improves sex life, and can be a way to have fun (2014). It appears a person's quality of life could be significantly impacted by any of the above factors.

As discussed above there is substantial research documenting the benefits of exercise on the body physically such as decreased blood pressure, cholesterol, risks of certain cancers, and overall improved quality of life. Research here generally acknowledged benefits of exercise for a person's mental health, their social environment, and their sense of wellbeing.

Benefits of Exercise on Mental Health

According to Craft and Perna (2004), seventeen percent of the population in the United States will experience a depressive disorder in their lifetime. However, research shows that when individuals experience these depressive symptoms they most commonly discuss them with their primary care physician, which typically leads to management of symptoms through anti-depressants (Craft and Perna, 2004). These authors reported that primary care physicians are less likely to refer patients for psychotherapy or prescribe behavioral interventions. In response to concerns with long-term effects of medications and lack of research on long-term effects, researchers began to seek alternative options for treatment of depressive symptoms and other mental health disorders. This article suggested that exercise is an effective intervention for numerous reasons (Craft and Perna, 2004) as did another by Perham and Accordio (2007).

According to Smith (2002), youth involved with organized sports and/or physical activity benefit from learning social skills, building peer relationships, and developing a peer group that is typically more resilient. Learning social skills and building peer relationships indirectly help youth increase self-esteem. Smith (2002) also found a positive link between participating in youth sports and feelings of competence. As a result of increased relationships, social skills, and feelings of competence, an individual's social wellbeing and mental health is positively impacted. Unfortunately, it appears there is a lack of research regarding how physical activity impacts adults' social networks; on the other hand, there has been previous research suggesting an increase in self-esteem for adults who participate in physical activity.

As stated by Perham and Accordio (2007), research has exhibited two positive outcomes from the behavioral intervention, exercise, for individuals with mental health

diagnoses. The first improvement seen by individuals with mental health disorders who participated in exercise interventions, is learning a means of coping and second, a decrease of symptoms for people with mental health disorders. Similarly, Dunn and Jewell (2010) reported that individuals with a mental health disorder who participate in exercise report a decrease in feelings of distress and an increase in preventive factors for symptoms of depression and anxiety. The authors note that exercise should only be used as an adjunct intervention and does not prevent an individual from developing additional mood disorders (Perham and Accorido, 2007; Boston University; 2001). However, exercise is a means of resiliency for decreasing symptoms of depression, anxiety, and of other mental health disorders (Dunn and Jewell, 2010). Along with decreasing symptoms, exercise can increase social wellbeing for an individual with or without a mental health disorder.

Perham and Accorido (2007) reported that exercise helped individuals with mental health disorders to gain social activities and connections. When individuals participated in new activities and found they were able to participate successfully, their self-esteem and feelings of competence increased. In addition, many forms of exercise were offered in a group setting such as running or biking groups and group fitness classes. Individuals who participated in these types of exercise typically experienced exercise as a social event. When these individuals continued to engage with the social peers they had built connections with during exercise, they began increasing their self-esteem and confidence from the development of social skills and development of new relationships: something individuals with mental health disorders typically lack (Daley, 2002). Ideally, individuals who participated in physical activity with others improved

themselves mentally, physically and socially. As demonstrated from these examples, exercise not only directly but also indirectly affects individuals.

Perham and Accorido (2007) suggest exercise as a means of coping with difficult thoughts and/or emotions and as a way to reduce stress. It was also reported that many individuals who struggle with substance use disorders have less effective methods of coping (Zschuke, Heinz, and Strohle, 2011) (Stoutenberg et al, 2014). As referenced by Rajita Sinha (2001), without successful measures of coping, the risk for relapse and return to substance use increases significantly, especially in early recovery. This literature may suggest that exercise could be a beneficial intervention for those recovering from a substance use disorder.

Exercise and Substance Use Disorder

Similar to the results reported in the literature regarding mental health and exercise, exercise interventions applied with individuals in recovery from substance use disorders have been demonstrated to be a beneficial adjunct intervention (Brown et al., 2010; Mooney et al., 2014; Poortingna, 2007; Smith et al., 2008; Williams, 2000). Individuals who participated in exercise interventions in early recovery benefited from decreased mental health symptoms and increased mood, decreased cravings, had an option for alternative activity, and increased social outlets and support. (Williams, 2000; Mooney et al., 2014).

Improved Mood

According to Mooney et al. (2014), a few ways that exercise may be advantageous for individuals who are in recovery include increased mood, improved sleep quality, and alternative activities for sober fun. Many people who struggle with

addiction also have one or more mental health disorders. Mooney et al. (2014) suggest the improved mood is in relation to the dopamine system, which also has an impact on symptoms that may be experienced in mental health disorders. To combat both, exercise may be an essential intervention. Mooney et al. stated, “Exercise has been shown to be as effective as cognitive behavioral therapy (CBT) and to psychotropic medications for depression. State anxiety has been shown to acutely diminish after individual episodes of exercise, and aerobic exercise may confer significant benefit in the treatment of adults with anxiety problems including anxiety sensitivity, panic disorder and obsessive compulsive disorder” (2014, p. 3). For individuals with both a substance use disorder and a mental health disorder, this could be a beneficial part of their treatment since it positively affects their mental health broadly, and their mood specifically, which together can decrease triggers and cravings.

Cravings

Smith et al. (2008) conducted empirical research using female rats to gain knowledge regarding how physical exercise impacts sensitivity to cocaine. This study found that the rats that ran most prior to having access to cocaine self administered less frequently than the rats that did not run often prior to having immediate access to the cocaine. The primary finding was that long-term physical exercise decreased sensitivity to the positively reinforcing effects of cocaine and therefore exercise aids in decreasing physical cravings for cocaine. This is an important relationship in that physical and emotional cravings directly relate to the availability of alternative activities and social outlets. For example, when individuals have healthy alternative activities or an enriched environment, cravings and triggers are less likely to be experienced. Many times

individuals experience cravings due to lack of activity or boredom (Alcoholrehab.com). Smith and Lynch (2012) suggest when individuals are engaged in physical exercise they typically have less down time and often have increased support network, both of which may be able help them work through these cravings.

Alternative Activities

A common topic that arose in the literature regarding benefits of exercise on mental and physical wellbeing and substance use disorders includes exercise as a way to spend time and to meet a healthy peer network (Brown, 2010; Mooney, 2014). As stated by Brown (2010), exercise can be a way to spend time participating in healthy activities with individuals who have an interest in events that do not involve substance use.

In contrast, Poortigna (2007) suggested a mixed finding in relation to physical activity and sports with heavy alcohol use. Poortigna (2007) offered a theory in regard to a positive correlation between physical activity and heavy drinking within certain forms of sportsmanship. According to Poortigna (2007), younger men who were active in a sportsmen's club were more likely to be heavy drinkers. On the other hand these young men were 11 times as likely to be physically active" (Poortigna, 2007, p 69). It was also suggested occupational workers and individuals in a lower socioeconomic status were less likely to be physically active and more likely to be heavy drinkers (Poortigna, 2007)..

Relapse Prevention

There is limited literature available concerning direct links between participating in exercise for individuals in early remission and decreased risk of relapse. However, previous literature suggested positive outcomes, which mostly exhibit an indirect positive correlation between exercise and substance use disorders (Poortinga, 2007: Smith et al.,

2008; Kelly et al., 2015). Overall, the literature reviewed suggests that exercise may be an essential tool in relapse prevention and in supporting other aspects of early remission. Exercise has been found to increase mood, to decrease mental health symptoms, and offers alternative individual and social activities other than using substances (Mooney et al. 2014; Brown, 2010). With that in mind, it seems that individuals who utilize exercise as a tool early in their sobriety could be at a decreased risk for relapse and have the opportunity to learn skills necessary to reduce cravings and ultimately achieve sustained remission.

Exercise Interventions

Most of the literature reviewed pertained to the effectiveness of exercise as an intervention to cope with mental health or substance use disorders. However, some empirical research has utilized specific interventions. One goal of utilizing exercise interventions with individuals who struggle with a substance use disorder is to trigger a natural pleasure response that is activated by the brain's own opiates versus a chemical put into their body (Turner and Dougherty, 2001).

Turner and Dougherty (2001) suggested a workout routine consisting of a warm-up, cardiovascular portion, resistance training, and cool down and/or meditation with individuals who have been diagnosed with a substance use disorder. This particular routine was suggested for several reasons. Something to keep in mind is that many people who struggle with substance use disorders do not typically exercise when they are actively using. Therefore, the warm-up period becomes especially important. In addition, individuals with substance use disorders tend to have a lower level of fitness. The lower level of fitness is important to be mindful of to prevent injuries or resistance to an

exercise program. Also, a large percentage of individuals who struggle with substance use disorders smoke cigarettes. This will affect their body's ability to exercise at intensive levels due to a blunted heart rate response (Turner and Dougherty, 2001). Resistance training was also included in this routine due to its significant benefits in relieving depressive symptoms (Turner and Dougherty, 2001). In addition to exercise, nutrition intervention and education have also been reported as conducive to long term recovery.

Kelly et al. (2015) completed a study with 160 participants from four different residential chemical dependency treatment programs. In this study, there were two different groups, a control group and a healthy recovery intervention group. The individuals in the control group completed normal treatment programming. The healthy recovery intervention group completed treatment programming in addition to a group lasting eight sessions consisting of healthy lifestyle interventions (Kelly et al., 2015). The topics discussed in the bi-weekly groups included increasing intake of fruits and vegetables, decrease nicotine and tobacco use, and increasing physical activity. These participants were given a pedometer to monitor their steps and help with motivation. Participants were also motivated with monetary incentives to decrease smoking.

Participants also tracked adherence to these interventions with worksheets reporting intake of fruits and vegetables, increased physical activity, and decrease or smoking cessation. Staff members also monitored adherence of the program (Kelly et al., 2015). This study not only expected to increase physical activity with individuals in residential treatment for substance use disorders but also sought to increase intake of fruits and vegetables and to decrease the use of cigarettes. Results from this study have

yet to be reported. However, this study was seen as influential due to being the first randomized controlled trial of healthy interventions for this specific group. This study also suggests necessary content to help educate individuals who struggle with substance use disorders to engage in an overall healthy lifestyle. Kelly et. al (2015) similarly suggested including nutrition education and incentives to decrease the use of cigarettes and increase intake of fruits and vegetables to decrease cardiovascular disease and cancers that are more prevalent for individuals with substance use disorders due to their frequently unhealthy lifestyles.

Conceptual Framework

This study utilized holistic health theory as a conceptual framework. This framework focuses on the whole person: body, mind, spirit, and incorporates interactions within the person's environment (Walters, 1999). The primary reason for utilizing the holistic health theory is that research shows increased positive outcomes of substance abuse treatment when an individual is treated as a whole versus solely for their addiction. Holistic Health was defined by Suzan Walters as "an approach to life rather than focusing on an illness or specific body part" (p. 7). The holistic health theory is relevant in this research study as the concepts correlate with incorporating exercise as a treatment intervention for individuals who struggle with a substance use disorder.

Alternative healing methods were being utilized as far back as five thousand years ago in India and China. As stated by Walters (1999), "Socrates warned against treating only one body part, for the part can never be well unless the whole is well" (p. 7). The articles found for the literature review supported exercise's association with the holistic health model, primarily due to exercise being an intervention with a broad, positive

benefit on physical, mental, social, and spiritual health. Concepts central to the holistic health model also help promote the direction that substance abuse treatment is heading: treating the body, mind, and spirit.

The holistic health model has typically been associated with physical health. Now it is beginning to be utilized within substance abuse and mental health treatment (Boston University, 2001). The main principle of the holistic health model is that people are made up of many interdependent parts that function best when all parts are working correctly. This model goes further to assert that the individual's environment may also influence how each interdependent part is working (Walters, 1999). This principle correlates directly with substance abuse treatment. Many treatment facilities are beginning to treat not only substance use disorders but also symptoms of mental health and physical health disorders.

One way many treatment facilities are working to utilize a holistic health approach is by incorporating many different topics during a treatment experience such as spirituality, physical health, exercise, nutrition, recreational activities, career, and family relationship. The holistic health model appears to support recovery in many ways. For example, when a person chooses to be in recovery, the success rates increase significantly when they create healthier habits and sober environment including living environment, hobbies, and peers. As a result, it is essential individuals in early recovery are taught the necessary skills to succeed in areas of their life beyond maintaining sobriety (Susan Walter, 2015).

Another principle of the holistic health model is seeing health as more than the absence of an illness (Walters, 1999), but sees health along a continuum (p.8). Today, substance use disorders are diagnosed based on a continuum from mild to severe. A person's overall health may also be seen on a continuum from healthy to unhealthy. To succeed in sustained remission, an individual needs to maintain a healthy lifestyle balance, and to give attention to domains such as being in as good physical health as possible, to manage mental health appropriately, to maintain friendships and family relationships, and to persist, if possible, with employment. On the other hand, an unhealthy person may struggle with relationships, maintaining employment, engaging in recreational activities, mental health symptoms, and symptoms of addiction. This idea of a continuum of health appears to relate closely with the holistic health model when all these life areas are included. The concepts listed above offer one approach, and serve as a way to understand the potential value of exercise as a component in the treatment of substance use disorders. The holistic health framework has also guided the creation of some of this study's research questions.

Methods

Research Design

The purpose of this study was to identify ways that exercise has impacted a sample of individuals in recovery from a substance use disorder. Significant research has been conducted regarding the impact of exercise on mental and physical health disorders. However, there has been minimal research regarding the effects of exercise for individuals in recovery from substance use disorders. Overall, research suggests that

exercise has positive effects on mental and physical health and possibly for individuals in recovery from substance use disorders. This study utilized a qualitative, exploratory research design to better understand the role of exercise for individuals in early recovery from a substance use disorder, outside of a formal treatment program.

Population and Sample

This study sample consisted of eight participants who report having been completely abstinent from substance use for at least a year. There were four men and four women who chose to participate. All participants in this study ranged from maintaining 2.5 years of abstinence to 25 years in recovery from a substance use disorder, with the mean number of years of remission being 13.81. Inclusion criteria consisted of a minimum of one year of remission from a substance use disorder, having participated in some sort of exercise in early recovery, and being over the age of 18 years old.

Participants reported varied levels of involvement with exercise throughout their recovery. Five out of the eight participations reported that they continue to participate in a regular exercise regimen. The exercise regimen varied from two to seven times per week. However, the three participants who no longer engaged in a regular exercise regimen but had exercised in early recovery were still included. Those participants who no longer engaged in a regular exercise regimen were asked about barriers and reasons for not participating currently. This group was seen as constituting a potentially valuable subgroup within the sample.

Participants were selected through a combination of purposeful and snowball sampling. As defined by Northeastern University College (2000), snowball or chain sampling is when the primarily researcher utilizes their social networks to refer well

informed or hard to reach participants to a certain study. Purposeful sampling was used to ensure all participants met the developed inclusion criteria.

The primary researcher hung up flyers in local coffee shops, support group meetings, and at chemical dependency treatment facilities. The researcher also sent out invitations to professional peers to distribute information regarding the study to individuals they thought might be interested and willing to participate. Participants then contacted the primary researcher by email or phone. One interviewee saw a flyer at a local coffee shop and contacted the researcher; the remaining seven were referred by professional peers. All eight respondents who contacted the researcher met the inclusion criteria to participate in this study.

Protection of Human Participants

In order to ensure the protection of human participants, an informed consent form was developed and discussed with each participant before beginning the interview. The consent form described the purpose of the study, its voluntary nature, procedures of the study, potential benefits and risks, the primary researcher's contact information, compensation, and measures that would be taken to ensure that each participant's information would be kept confidential (refer to Appendix A.) The informed consent was created from a template approved by the University of St. Thomas Institutional Review Board (IRB) for an expedited level review and was approved by a research committee. This research committee consisted of Bethani Lawrence, Michael Brunner, and David Roseborough. Following initial approval from the IRB the primary researcher made changes to expand her research sample from solely southeast Minnesota to include the Phoenix, Arizona region as well. Following the approval of this design change from the

IRB and research committee, the informed consents were updated and completed. After reviewing the informed consent with participants, they were asked three questions to assess their understanding of consent form. Prior to beginning interviews, participants were also given the opportunity to ask questions regarding the informed consent and research study. After agreeing to participate and signing the informed consent form, the participants were given a copy of the consent form for their records. The participants were also informed that they are able to discontinue this study at any time.

Data Collection

A qualitative research design was used to gather data from voluntary participants through interviews. The interviews conducted were performed in a semi-structured format, guided by a series of questions that were pre-approved by the research committee and the IRB through the University of St. Thomas (see appendix B for interview guide). The guiding questions created were intended to build upon existing research regarding, broadly, the relationship between exercise and recovery from substance use disorders and to provide additional knowledge regarding some potential effects of exercise on early recovery (defined as remission or as complete abstinence from substance use). The open-ended guiding questions were designed to allow the interviewee to share their personal experiences honestly and openly and to avoid potential bias from the researcher.

The guiding questions were intended to gather information regarding personal benefits participants had experienced in early sobriety and throughout their recovery from a substance use disorder. The questions began by gathering background information regarding what makes up their personal recovery program and their experiences with exercise in early recovery. Next, questions were asked regarding perceived benefits and

challenges of exercise in early recovery, the evolution of the relationship between exercise and recovery, and specific types of exercise they perceived as particularly beneficial. Lastly, participants were asked questions concerning their recommendations to others in early recovery who might want to participate in an exercise regimen, suggestions for how they might get started, and specific aspects of exercise or recovery they thought that others should consider prior to participating in an exercise regimen.

Data Analysis

Once the interviews were completed, the researcher used open coding to analyze the data. Open coding is defined as a way to identify themes and categories, without a specific purpose or restrictions (SAGE, 2008). In lay terms, open coding is the beginning process of learning to make sense of data in qualitative research.

To begin the coding process, the interviews were transcribed. Next, the data were read and reviewed for common codes. Codes were written within the margin of the transcription and grouped by similarities. The recurring codes were then grouped into themes and subthemes. The themes and subthemes were reviewed to ensure that they were relevant to each other and to confirm all codes were included. The transcriptions were kept in a binder, organized by themes.

In order to check reliability of the themes, subthemes, and codes, the researcher completed a secondary review. The purpose of the secondary review was to ensure all the codes identified pertain to the common themes. The secondary review was also meant to guarantee that common codes were not overlooked within the initial review. If any codes were missed, they were added and a secondary review will be complete again.

The secondary review was completed utilizing selective coding. According to SAGE Encyclopedia of Qualitative Research Methods, selective coding is defined as gathering data with specific themes or topics already identified (2008). For the purpose of this study, these topics include: the benefits of exercise (such as social, spiritual, and physical), exercise leading individuals to make healthier choices, and barriers to exercise.

Results

The sample for this study included eight participants: four male and four female. The ages of the participants ranged from 31 to 65 years of age. All participants had a minimum 2.5 years of recovery from a substance use disorder and ranged up to 25 years, with the mean being 13.8 years of recovery from a substance use disorder. Each interview ranged from 25 minutes to 55 minutes.

The method used to recruit participants consisted of purposeful and snowball sampling; flyers were hung around local businesses and at support group meetings. The researcher's professional peers were emailed flyers and invitations to distribute to individuals they felt would be willing to participate and fit inclusion criteria. The eight participants responded to these invitations and/or flyers by phone or email and agreed to participate in one interview ranging from approximately thirty minutes to an hour.

The individuals who agreed to participate were asked questions to discuss topics regarding what makes up their recovery program, if and how they exercised throughout their recovery, benefits and drawbacks of exercise throughout recovery, if they'd recommend others to participate in exercise in early recovery, and if so, suggestions they would have for individuals to get involved.

Five out of the eight interviews were audio recorded and transcribed. Those five interviews also took place in person at a location chosen by the participant. Three of the eight interviews were unable to be recorded and took place over the phone. The researcher took extensive notes during phone interviews to aid within the coding process.

Data were gathered through transcribed interviews and field notes. Themes were acknowledged by utilizing inductive and deductive coding. The researcher first analyzed the data inductively, which allowed themes to develop on their own through open coding. Next, the researcher reviewed field notes and transcriptions for a second time in a deductive manner, exploring the data for common themes, which were previously identified in the first round of coding, to confirm the themes found to organize or capture the more specific codes.

The main broad themes that emerged when data were explored inductively include: the benefits of exercise, drawbacks of exercise, and necessity of exercise. Within the broad theme of benefits of exercise, three subthemes arose: social and spiritual benefits, physical and mental health benefits, and improved choices. Within the main theme of drawbacks of exercise, two subthemes arose: lack of balance and injuries.

Themes of Benefits of Exercise

Theme 1: Benefits of exercise

All participants were asked broadly to share the benefits of exercise, if any, they have personally experienced throughout their recovery from a substance use disorder. All eight participants reported they had noticed some sort of benefits from exercise. The most frequently identified subtheme was physical and mental health benefits from exercise. Three subthemes were also identified within this theme: physical and mental health

benefits, social and spiritual benefits, and improved choices. All eight of the participants acknowledged some level of physical and mental health benefits. Many of the participants mentioned some of the same benefits. There was some variation in benefits from exercise reported from one participant to another.

Subtheme 1: Physical and mental health benefits

Participants were asked about the benefits they have noticed from their engagement in exercise in early and throughout recovery. The first and most commonly identified theme from participants was increased energy levels. Most of the participants noted that when they engaged in exercise a few time per week their energy levels seemed to increase. Participant number two reported, “ I felt less lethargic on a regular basis when I was exercising.” Along with increased energy, several participants also reported an increase in quality of sleep, mood, decrease of anxiety or depression, and overall just feeling better. When asked what benefits she noticed from exercise, if any, participant number one stated, “Oh yes. I wasn’t depressed, I felt good, had a better attitude. Like every person, or at least women, I liked my body better. It just felt good.” She later went into more detail to discuss how feeling more positive, less depressed, feeling better about her body, and having a “better body” led to a healthier recovery program.

On the other hand, participant number six shared benefits of exercise but reported his focus was more on the way it has changed his thinking. For example, he discussed during the phone interview that once he become involved with exercise in early recovery, he started to focus on healthier activities and therefore felt a decrease of cravings and urges. Lastly, He reported that exercise has helped overall with working his program of recovery, having improved his mood, and mostly with his physical health.

Overall, every participant reported some perceived physical or mental health benefit from exercise throughout recovery. As stated above, these ranged from decreased anxiety, increased mood, decrease of stress, improved quality of sleep, feeling better about themselves, or just feeling better. In addition to physical and mental health benefits participants reported experiencing many other benefits such as social or spiritual benefits from exercise.

Subtheme 2: Social and spiritual benefits

The second subtheme that emerged throughout coding was social and spiritual benefits of exercise. Participants were asked generally to discuss benefits they experienced from exercise during early recovery and throughout sustained recovery. About half of the participants either exercised with others or had at one time. Those participants who reported exercising with others reported social benefits. On the other hand, the participants who did not exercise with others reported a spiritual benefit, especially when they exercised outdoors. When participant number three was asked about how her exercise had evolved with her recovery, she stated:

I guess I found ways to do recovery related things when I was exercising. So for example, when I was running that is when I would change my meditation time. I would mindfully meditate, would not listen to music all the time.

Participant number one also shared how exercise was a spiritual experience for her multiple times. When she was asked if she noticed a difference from exercising indoors or outdoors she explained:

Um, I love to hike. I used to hike a lot. Like big hikes. I love being outside. There is something spiritual about being outside. I didn't used to care for it. But I tell

myself you are only here for one hour. I can listen to myself, this crap for one hour. When you're outside it is like Wow! Look what God made. It's different. I think I better get with it again the more I am talking about it.

Later in the interview, participant number one also discussed how her sponsor believed fully in getting and staying active as part of recovery. She shared:

My sponsor was sober for a long time and for our meetings we walked. If I wanted her for a sponsor, I needed to be there at six or seven a.m. and we went walking. And that's when you talk, when you walk. Part of exercise is also part of spiritual growth. You can talk, I think that is so important. Those just go together, talking, and walking.

Participant number four did not report any spiritual benefits of exercise, however, he reported a significant social benefit. When asked if he had noticed any benefits of the activities he was participating in, softball, bowling, and golfing he stated, “ there are so many. Learning you can live life sober and still be active, building that social network, getting to know people on a different level and different than just sitting at a meeting.”

Lastly, 75 percent of participants reported social and/or spiritual benefits of exercise in early and sustained recovery along with physical and mental health benefits. From the data, it appeared that those who exercised alone found benefits of meditating and spirituality. Whereas, those who exercised with others reported improved social skills and began building healthier relationships.

Subtheme #3: Improved Choices

The third common subtheme that emerged during the coding process was improved choices. Participants were asked broadly to discuss the benefits they

experienced as a result of exercising in recovery from a substance use disorder.

Approximately half of the participants reported that once they had begun exercising they began making healthier choices in other areas of their lives. The most common example shared was once the participants had begun exercising regularly, they found an increased to desire to quit smoking. Participant number three was asked if there were any benefits that surprised her when she first started exercising, she stated:

Well I suppose it encouraged me to quit smoking. I quit smoking in that second year, which, was huge. I had smoked from the time I was 8 until 24. I was 24 when I quit. It was a long time. It is hard to exercise and smoke. Exercise also gave me more of a conscious about my health and what I was doing.

Participant numbers seven and eight reported exercise had encouraged them to quit smoking. More specially, participant number seven explained that she had begun exercising in the end of 2007 and had decided to quit smoking in 2008. She reported she had wanted to quit smoking for a long time but in 2008 it was beginning to interfere with her running.

Other than quitting smoking one participant discussed how she had become overall more health-conscious. When asked how the role of exercise had changed with her recovery, she stated:

They just go hand in hand because they are both health-conscious and being mindful in helping yourself doing the right things for the right reasons. Eating the right things and being mindful of your overall health. If you want to have good blood pressure and pulse you have to get out and make that happen.

On the other hand, participant number one discussed how exercise has always been a part of her life. She reported at times she would go out for a morning run and come home to drink. She reported being calorie conscious but that would not stop her from hiking while intoxicated.

Overall, fifty-percent of the participants reported they had either quit smoking, eaten healthier, or had become more conscious of their overall health once they began exercising. Although, one participant mentioned that she was not sure she could attribute her newly developed health consciousness to exercise, her recovery, or both.

Theme 2: Drawbacks of exercise

After inquiring about benefits of exercise participants experienced, participants were asked broadly what drawbacks they had experienced from exercise, if any. Few participants reported actual drawbacks they had personally experienced. However, many of the participants reported two common subthemes that they had witnessed or thought could be a drawback. The two common sub-themes that emerged during the coding process was lack of balance and injuries. The only other drawback participants reported was time away from children or family.

Subtheme 1: Lack of balance between exercise and other life areas

The first most common subtheme that was identified in the coding process was lack of balance. One question all participants were asked was “ what drawbacks, if any, did you experience from engaging in exercise?” Many participants were unable to identify drawbacks. However, among those participants who did report drawbacks, lack of balance for themselves or others they have known, emerged as a subtheme. One participant reported he tends to over do it at the gym, which leads him to taking a few

days off from exercising. He reports being an “addict in recovery,” meaning he tends to have an obsessive personality. Therefore, when he is involved with an exercise regimen he has to be mindful of the amount of time and how often he participates in exercise.

Three other participants discussed similarly that they had seen others in recovery exercise compulsively, where it had begun to affect other life areas. All participants were also asked if there was anything someone in early recovery should consider prior to beginning an exercise regimen. When asked that question, the same three participants mentioned above explained that exercise should be one part of a person’s recovery program. They suggested focusing on balance, scheduling time to exercise, but also scheduling time for other priorities. These participants also stressed the importance of twelve step support groups, sponsorship, fellowship, and having a relationship with a higher power, in addition to an exercise regimen.

Overall, few participants reported drawbacks of exercise. Of those who did report drawbacks of exercise, they spoke to the risk of a lack of balance within their recovery program for themselves, or for others they know. Participants reported people in recovery from substance use disorders tend to be more susceptible to engaging in things to the extreme or compulsively. Therefore, it was recommended that individuals in early recovery create a schedule for exercise and other important priorities.

Subtheme 2: Injuries

The second subtheme that emerged during the coding process was injuries. When participants were asked about the drawbacks they experienced throughout recovery, a few participants reported experiencing injuries. However, only three participants reported experiencing an injury. One participant reported that their injuries tend to happen due to

over-exercising. The other two participants were unable to identify why they had experienced injuries.

Overall, it appeared injuries were a minimal concern for most participants since they did not personally experience them. However, when participants were asked if they had any recommendations for people who wanted to begin exercising, they suggested individuals should complete a physical and consider mental health and physical fitness level prior to beginning an exercise regimen.

As a group, the participants reported significantly more benefits from exercise versus drawbacks from exercise as part of their recovery. Participants reported physical, mental, social, and spiritual benefits from exercise. More specifically, participants reported increased energy levels, improved sleep, fewer symptoms of anxiety and depression, more positive mood, improved relationships, exercise as a means of a healthy hobby, more time for spiritual growth, and feeling more confident. Participants reported some drawbacks such as lack of time with family, injuries, and the risk of lack of balance. All participants responded positively when asked if they would recommend others in early recovery to participate in a regular exercise routine. This suggests participants identified significant value of exercise for their recovery and health.

Overall, participants reported more benefits than drawbacks from exercise in all stages of recovery. The most common benefits reported by participants were physical and mental health benefits, social and spiritual benefits, and improved health choices. A few drawbacks were also reported such as injuries resulting from exercise and lack of balance in other life areas. Some of the drawbacks mentioned were not personally experienced by participants but had been experienced by someone they knew. Even though not all

participants have continued their involvement with exercise throughout their recovery, all participants recommended exercise to individuals in recovery from a substance use disorder. This recommendation from all participants demonstrates the potential, significant benefits of exercise for individuals physically, mentally, and spiritually.

Discussion

The key findings from this study were that the benefits of exercise in early recovery outweigh the drawbacks. All participants reported physical and mental health benefits of exercise such as increased energy, improved sleep, and increased moods. Most participants also reported social and spiritual benefits of exercise depending on whether they participated in exercise with others or alone. However, few participants reported drawbacks of exercise.

The purpose of this study was to explore the effects of exercise on individuals who are in early recovery from a substance use disorder. While there is significant research supporting varying types of mental and physical health benefits related to exercise, there is a lack of research exploring the benefits of exercise for those in remission, and in particular early recovery, from a substance use disorder, which made this research necessary and intriguing. The findings in this study revealed both similarities and differences with existing research. These similarities and differences revealed valuable information regarding the effects of exercise for those in recovery from a substance use disorder and some potential implications for practice. Largely, participants seemed willing and open to sharing their experiences regarding exercise throughout early and later stages of recovery. Participants spoke to personal benefits of

exercise such as physical and mental health benefits, social and spiritual benefits, and improved health choices. Participants also shared drawbacks of exercise such as injuries and lack of balance in other life areas.

Physical and mental health benefits of exercise

One of the most significant findings of this study was the varied benefits participants experienced from exercise throughout recovery. All participants identified physical or mental health benefits of exercise. These physical and mental health benefits varied from improved mood, improved sleep, feeling better physically, decreased symptoms of anxiety or depression, weight loss, and increased energy levels. The benefits reported were also consistent with previous research. According to the Mayo Clinic (2014), physical exercise boosts energy levels, improves quality of sleep, improves sex life, and can be a way to have fun. Previous research also reported decreased symptoms of depression, anxiety, and other mental health conditions. (Accorido, 2007; Craft & Perna, 2004; Dunn & Jewell, 2010).

On the other hand, previous research reported many physical benefits associated with exercise such as decreased blood pressure, decreased risk of stroke, and exercise being beneficial in reducing risk and in managing diabetes, decreasing risk of heart disease, and decreasing risk of some cancers (WHO, 2015). Participants in this current study did not report any significant physical health changes identified by a medical professional. This may be for a number of potential reasons, such as a lack of recent medical visits or being unaware of physical state while they were in an active state of substance abuse.

One intriguing common theme that emerged from the women participants during the coding process was increased positive feelings toward their bodies. Several women reported “liking their bodies” better after they had begun exercising. However, none of the male participants reported an improved body image. Although the male participants did not speak to body image, some men in this study reported increased self-esteem.

Another interesting commonality that arose was the fact that three out of the eight participants no longer engage in regular exercise. When probed as to why these individuals no longer exercise different reasons were identified including working multiple jobs or long hours, having a family, attending classes, and having overall more responsibilities. All three of the participants who no longer participate in an exercise program identified exercising a few times per week as a future goal.

Overall, findings from this study and results from previous research seemed consistent. Many physical and mental health benefits were noted as a result of physical exercise. One compelling finding from this study was the suggestion of different experiences of exercise based on gender. Multiple women reported an increased positive body image, where most men did not explicitly report feeling better about their bodies.

Social and spiritual benefits of exercise

The second most common response regarding benefits of exercise was social or spiritual benefits. It appeared that individuals who were engaged in a regular exercise regimen reported social benefits and/or spiritual benefits depending on how they were exercising and if they were exercising alone or with others. For example, when participant number four was asked if there were any benefits of exercise he stated, “There are so many. Learning you can live life sober and still be active, building that social

network, getting to know people on a different level and different than just sitting at a meeting.” As the discussion continued, this particular participant discussed consistently exercising with friends and as a means to have fun.

The social benefits reported by participants were also consistent with previous research. According to Perham and Accorido (2007), exercise helps individuals with mental health disorders to gain social activities and connections. Smith (2002) also reported that youth involved with organized sports and/or physical activity benefit from learning social skills, building peer relationships, and developing a peer group that is typically more resilient. Learning social skills and building peer relationships indirectly help youth increase self-esteem. Based on these reports and responses from participants in this present study, these benefits appear to remain true for adults in recovery from a substance use disorder.

There was limited previous research found regarding spiritual benefits of exercise. However, multiple participants in this study discussed spirituality as a benefit of exercise. For example, participant number three shared “When I was running that is when I would change my meditation time. So I would mindfully meditate, would not listen to music all the time. So I’d just take note of the things around me.” Participant number five’s response was also consistent with participant number three. She discussed how she began to look forward to running, not only for exercise, but to spend time actively meditating. She reported a connection between exercise, active meditation, and improved mood. Lastly, participant number eight also reported her long distance runs felt like a spiritual experience. She reported when she ran distances alone, she would not listen to music in order to simply focus on her surroundings.

Overall, most participants who engaged in some type of exercise by themselves outside reported spiritual benefits of exercise. Those individuals who reported they exercised with peers or participated with group fitness classes reported primarily social benefits versus spiritual benefits. The most common social benefits reported included a sense of community and identification, gaining a healthy hobby, and finding a positive support network.

Improved health choices

The third most common theme reported from participants was improved health choices. Many participants reported either adapting eating healthier habits, quitting smoking, or beginning to be more mindful of all-around health after getting involved with exercise. Participant number eight discussed how as her recovery evolved her exercise regimen has become more engrained into her everyday life. She reported she quit smoking when she first started running on a regular basis. She also reported that she now takes her children to the local YMCA to get their exercise. Participant numbers three and five also reported exercising was their main motivator for quitting smoking. Participant number six discussed that exercise has helped with his overall health by participating in healthy hobbies, encouraged him to eat the right foods, and focus on portion sizes. Participant number two also reported exercise influencing his overall health. He reported noticing when he was working out more regularly he focused on a balanced diet and as more in tune to his body and mind.

These common responses from participants of making overall healthier lifestyle choices is consistent with the conceptual framework of the holistic health model. Based on the data it appears healthy choices can have a momentum and be “contagious.”

Participants reported that once actively involved with exercise they tended to make healthier choices in other life areas. This suggests that when the whole body is healthy, individuals function more effectively. It is also consistent with the idea of countering strategies articulated by authors such as Norcross, Prochaska, and DiClemente in the book “Changing for Good.”

Previous research lacked information regarding the impact of exercise on overall health choices. However, a few articles noted exercise can increase an individual’s overall wellbeing. (Mayo Clinic, 2014; Kelly et al., 2015). In this, and in previous studies, participants reported an increased awareness of health, eating healthier, and/or quitting smoking after engaging in regular exercise. This suggests that exercise may be an ongoing positive intervention in individuals’ lives.

Strengths and Limitations

This study has many strengths and limitations involving the qualitative research design, the process by which participants were chosen, and how data were analyzed. In keeping with the qualitative and exploratory research design, only eight participants were reached. One strength of this study is the balanced representation of gender. I hoped to obtain four men and four women in my sample and that was achieved. This study also expanded the design to include reaching out to people in another state, after an amendment from the IRB at The University of St. Thomas. This was a potential strength by way of providing perspectives from more than one geographical region of the country.

As for limitations, eight participants may be a small sample size when thinking about the whole population of individuals in recovery from a substance use disorder. In addition, a few of the participants reached had connections to a certain facility, which

may create a bias within the findings or some “group think.” On the other hand, the qualitative nature of the interviews offered a good deal of detail and provided participants with the opportunity to speak to themes like meaning and recovery from personal experiences. This study allowed participants the opportunity to share their experiences, first hand, regarding how exercise has improved their early and ongoing recovery, drawbacks of exercise on recovery, and to offer suggestions for others in recovery. One other limitation of the interviews would be the nature of how they were completed. Considering some of the interviews took place in person and some over the phone, some of the participants’ mannerisms or non-verbals were unable to be observed during the phone interviews. In addition, the phone interviews were unable to be recorded due to lack of assisted technology here. Therefore, the researcher needed to utilize field notes instead of transcriptions for three of the interviews. Lastly, the study lacked a second coder who could have reviewed and validated the emerging themes as a form of a reliability check.

Suggestions for Future Research

There continues to be a deficit in research related to substance use disorders and exercise. The findings of this study, especially the significant, varied benefits of exercise for individuals in recovery from a substance use disorder, are essential to increasing quality care and recovery, and suggest the necessity of continued research. Research focusing on the inclusion of exercise within early recovery from a substance use disorder, specific interventions, and consisting of a larger sample size would likely produce more generalizable results. It would be necessary to continue research to focus on the effects of exercise on triggers and cravings and as a relapse prevention skill.

Another intriguing area for further research would be to explore the outcomes and satisfaction of individuals who participate in different treatment settings, including inpatient and outpatient, which include an exercise program.

Implications for Social Work Practice

Although this study explored general benefits and potential drawbacks of exercise for those in recovery from a substance use disorder, it has only touched on possible benefits of exercise as a support to recovery. These findings can influence social work practice in a variety of ways.

Social workers come into contact with individuals and their families in many different ways and settings. Social workers tend to have different roles and levels of involvement in treatment related settings. A greater understanding of substances use disorders, the stigma associated with substance use disorders, effective treatment interventions, and available resources are all essential to the wellbeing of individuals and families they are working with. The significant benefits of exercise for those in recovery from a substance use disorders, described by those interviewed in this pilot study, suggest a need for additional programs and resources for individuals to get involved with exercise as part of their recovery.

As a social worker, it is helpful to remember the significant benefits of exercise for depression, anxiety, and energy levels. It is also potentially helpful to use exercise as a therapeutic intervention for individuals, whether on their own time or even during a meeting with them. An example may be when meeting with a client for a shorter timeframe to suggest to walk and talk, if appropriate. In result of my research, it appears

that exercise is beneficial most people young and old. The findings suggest encouraging others to get involved and to remember to lead by example.

Conclusion

Many people struggle with substance use disorders throughout their lifetimes. Although there are many different treatment options, there is a lack of research regarding how exercise impacts individuals in recovery from a substance use disorder. Considering the previous research available demonstrates significant benefits of exercise on physical and mental health, it is crucial additional research be completed regarding exercise and its specific potential for people in various stages of remission from substance use disorders.

References

- American Psychiatric Association: Diagnostic and statistical manual of mental Disorders, Fifth Edition. Arlington, VA, American Psychiatric Association, 2013.
- Boston University. (2001, October). Alternative approaches to mental health care. Recovery and Rehabilitation, 1 (4). Retrieved from <http://cpr.bu.edu/resources/newsletter/alternative-approaches-mental-health-care>.
- Brown, R. Abrantes, A., Read, J., Marcus, B., Jakicic, J., Strong, D., Oakley, J., Ramsey, S., Kahler, C., Stuart, G., Dubreuil, M., and Gordon, A. (2010). A pilot study of aerobic exercise as an adjunctive treatment for drug dependence. *Mental Health and Physical Activity*, 3 (1), 27-34. doi: 10.1016/j.mhpa.2010.03.001.
- Centers for Disease Control and Prevention. (2015, June 4). The benefits of physical activity. Retrieved from <http://www.cdc.gov/physicalactivity/basics/pa-health/>
- Craft, L.L & Perna, F.M. (2004). The benefits of exercise for the clinically depressed. *Primary Care Companion to The Journal of clinical Psychiatry*, 6(3), 104-11.
- Daley, A. (2002). Exercise therapy and mental health in clinical populations: is exercise therapy a worthwhile intervention. *Advances in Psychiatric Treatment*. 8, p.262-270.
- Dunn, A. L & Jewell, J. S. (2010). The effect of exercise on mental health. *Current Sports Medicine Reports*, 9, 202-207. doi: 10.1249/JSR.0b013e3181e7d9af.
- Kelly, P., Baker, A., Deane, F., Callister, R., Collins, C., Oldmeadow, C., Attia, J., Townsend, C., Ingram, J., Dyrne, G. & Keane, C. (2015). Study protocol: a stepped wedge cluster randomized controlled trial of a healthy lifestyle intervention for people attending residential substance abuse treatment. *BMC Public Health*, 15:465. doi: 10.1186/s12889-015-1729-y.
- Mayo Clinic Staff. (2014, February 5). *Exercise: 7 benefits of regular physical activity*. Retrieved from <http://www.mayoclinic.org/healthy-lifestyle/fitness/in-depth/exercise/art-20048389?pg=1>
- Mooney, L., London, E., Chudzynski, J., Dolezal, B., Dickerson, D., Brecht, M., Penante, J. & Rawson, R. (2014). Exercise for methamphetamine dependence: Rationale, design, and methodology. *Contemporary Clinical Trials*, 37(1), 139-147. doi: 10.1016/j.cct.2013.11.010.
- Perham, A. & Accordino, M. (2007). Exercise and functioning level of individuals with severe mental illness: A comparison of two groups. *Journal of Mental Health Counseling*. 29(4), pp.350-362.

- Poortinga, W. (2007). Associates of physical activity with smoking and alcohol consumption; A sport or occupational effect? *Preventive Medicine*, 45(1), 66-70. doi: 10.1016/j.ypmed.2007.04.013.
- President's Council on Fitness, Sports & Nutrition. (2015). Physical activity. Retrieved from <http://www.fitness.gov/resource-center/facts-and-statistics/>
- Ratey, J & Haugen, E. (2008). *Spark: The revolutionary new science of exercise and the brain*. Location: Little, Brown and Company.
- Read, J. and Brown, R. (2003). The role of physical exercise in alcoholism treatment and recovery. *Professional Psychology Research and Practice*, 34(1), 49-56.
- SAGE (2008). Thematic coding and analysis. In *The SAGE Encyclopedia of Qualitative Research Methods*. (Vol. 1&2, pp.867-868). Los Angeles, CA: SAGE Encyclopedia.
- Smith, A. (2002, May 23). Peer relationships in physical activity contexts: a road less traveled in youth sport and exercise psychology research. *Psychology of Sport and Exercise*, 4, 25-39. doi: 10.1016/S1469-0292(02)00015-8.
- Smith, M., Schmidt, K., Iordanou, J., and Mustroph, M. (2008). Aerobic exercise decreases the positive- reinforcing effects of cocaine. *Drug and Alcohol Dependence*, 98 (1-2), 129-135. doi: 10.1016/j.drugalcdep.2008.05.006.
- Stathopoulou, G., Powers, M., Berry, A., and Smits, J. (2006). Exercise interventions for mental health: Quantitative and Qualitative Review. *Clinical Psychology: Science and Practice*, 12 (N2). 179-193.
- Stoutenberg, M., Warne, J., vidot, D., Jimerez, E., and Read, KJ. (2014). Attitudes and preferences towards exercise training in individuals with alcohol use disorders in a residential treatment setting. *Journal of Substance Abuse Treatment*, 49, 43-49. doi: 10.1016/j.jsat.2014.08.008.
- Substance Abuse and Mental Health Services Administration. (2015, June 17). *Substance Use Disorder*. Retrieved from www.samhsa.gov/disorders/substance-use.
- Turner, D. and Dougherty, R. (2001, April). Exercise and substance abuse: Programming recommendations and exercise considerations for clients in rehabilitation programs. *Idea Health & Fitness Source*.
- Walters, S. (1999). Holistic health. *Illustrated Encyclopedia of Body Mind Disciplines*. Retrieved from <http://ahha.org/articles.asp?Id=85>.

- Williams, D. (2000). Exercise and substance abuse treatment: Predicting program completion using logistic regression. *Corrections Compendium*, 25(2), 4-7.
- World Health Organization. (2015, January). *Physical activity fact sheet*. Retrieved from <http://www.who.int/mediacentre/factsheets/fs385/en/>
- Zschucke, E., Heinz, A., Strohle, A. (2011). Exercise and physical activity in the therapy of substance use disorders. *The Scientific World Journal*, 2012, 2-19. doi: 10.1100/2012/901741.

Appendix A

CONSENT FORM UNIVERSITY OF ST. THOMAS GRSW682 RESEARCH PROJECT

Impact of Exercise during Recovery from a Substance Use disorder

I am conducting a study regarding the impact of exercise during recovery from a Substance Use Disorder. I invite you to participate in this research. Some of my peers from the recovering community handed out invitations for this study and flyers were hung up around local businesses asking for participants in recovery from a substance use disorder. Since you contacted me, I assume you are interested in participating. Please read this form and ask any questions you may have before agreeing to be in the study.

This study is being conducted by: Tiffany Amdahl, a graduate student at the School of Social Work, St. Catherine University/University of St. Thomas and supervised by Dr. David Roseborough.

Background Information:

The purpose of this study is to gather knowledge regarding how exercise affects the recovery process for individuals with a Substance Use disorder and types of interventions that wares seen as beneficial to recovery from a substance use disorder.

Procedures:

If you agree to be in this study, I will ask you to do the following things: participate in a 45-60 minute interview which will take place in a mutual location in Rochester, MN. There will be approximately seven other participants. This interview will be audio taped to aid in recording and deciphering results. The principle researcher will also transcribe this interview. No follow ups will be necessary.

Risks and Benefits of Being in the Study:

The study has minimal risks. The questions being asked will avoid more sensitive topics and focus on the effects of exercise for those in recovery from a substance use disorder.

The study has no direct benefits.

Compensation:

Participants will be given a five dollar gift card to a local coffee shop following the completion of their interview.

Privacy:

Your privacy will be protected while you participate in this study by completing the interview within a mutual setting such as public conference room.

Confidentiality:

The records from this study will be kept confidential. In any sort of report I publish, I will not include information that will make it possible to identify you. The types of records I will create

will include an audio recording of our interview and transcript of the interview. The audio recording will be kept on a password protected phone prior to transcription. Once the audio recording is transcribed, the audio record will be deleted. The transcriptions will be kept in a locked file in my office at Fountain Centers. Each participant will be identified as respondent one etc. I will also keep the electronic copy of the transcript in a password protected file on my computer. When traveling, my laptop computer will be kept in trunk of my car. I will delete any identifying information from each transcript. The findings of the research will be presented and published but no identifying information will be included. The audiotape and transcript will be destroyed by September 1, 2016. However, all signed consent forms will be kept for a minimum of three years upon completion of this study. Institutional Review Board officials at the University of St. Thomas reserve the right to inspect all research records to ensure compliance.

Voluntary Nature of the Study:

Your participation in this study is entirely voluntary. You may skip any questions you do not wish to answer and may stop the interview at any time. Your decision whether or not to participate will not affect your current or future relations with St. Catherine University, the University of St. Thomas, or the School of Social Work. There are no penalties or consequences if you choose not to participate. If you decide to participate, you are free to withdraw at any time without penalty. Should you decide to withdraw, data collected about you will not be used in this study. You can withdraw by informing the research of the desire to discontinue study and all obtained records will be destroyed.

Contacts and Questions

My name is Tiffany Amdahl. You may ask any questions you have now and anytime during or after the research procedures. If you have questions later, you may contact me by telephone at 651-252-0818 or by email at tmaresearch15@gmail.com. You may also contact my professor, David Roseborough, by phone at 651-962-5804 or email djroseboroug@stthomas.edu. You may also contact the University of St. Thomas Institutional Review Board at 651-962-5341 with any questions or concerns.

You will be given a copy of this form to keep for your records.

Statement of Consent:

I have had a conversation with a researcher about this study and have read the above information. My questions have been answered to my satisfaction. I consent to participate in the study and to be audiotaped during this study. I am at least 18 years of age.

Signature of Study Participant

Date

Print Name of Study Participant

Signature of Researcher

Date

Appendix B

Interview Questions

- 1) Please tell me a little bit about what makes up your recovery program by that I mean things that support your recovery broadly.
- 2) What role did exercise play in your early recovery, if any?
 - a. What kinds of exercise did you do, choose not to do, and why?
 - b. Did you typically engage in this exercise alone or with others?
 - c. Can you speak to any benefits and/or challenges associated with exercise back then (in early recovery)?
 - i. For instance, were you returning back to an exercise program, or participating with exercise for the first time?
 - ii. Were there any surprises for you (surprise challenges or benefits – things you didn't anticipate)?
 1. Were there any benefits to you beyond the physical benefits of exercise back then?
- 3) What role does exercise play in your recovery now, if any?
 - a. How is it similar to/different from when you started (from earlier in your recovery)?
- 4) How has the role of exercise evolved with your recovery?
 - a. What has and/or hasn't changed?
- 5) If exercise has helped your recovery, what benefits have you experienced? That is, how has it helped in sustaining your recovery?
- 6) Is there any ways you feel exercise has been not been beneficial to your recovery?
- 7) What suggestions would you have for others in early recovery pertaining to exercise?
- 8) How would you encourage others in early recovery to get involved with exercise as part of their recovery program, if you would?
 - a. Are there things people should/shouldn't do here?
 - b. Things that are important to consider as they begin?
- 9) If you have found exercise to be beneficial in your recovery, what types of exercise have you incorporated?
- 10) What role do you see exercise playing in your future?
- 11) Is there anything I haven't thought to ask that you'd like to add?

Appendix C

YOU ARE INVITED!

I would like to invite you to participate in a study regarding the influence of physical exercise during the recovery process from a substance use disorder. This study aims to gather knowledge on benefits and consequences of exercise for those in early remission from a substance use disorder, types of exercised used in early sobriety, and how exercise routines change throughout sustained sobriety.

You are being invited to participate by one of your peers due to being abstinent from all drugs and alcohol for at least the past 12 months and have not been in the any formal treatment in the past year.

If you choose to participate, you will be asked to participate with a 45-60 minute audio taped, interview regarding your engagement, if any, with exercise during early and throughout your recovery process from substance related problems. Your participation in this study is completely voluntary and you are able to withdraw from this study at any time.

There are minimal to no risks in participating in this study. There are no direct, personal benefits of this study. However, You may benefit from participating in this study by gaining a deeper understanding of the role of exercise in your life and if it has contributed to your sustained abstinence. Your participation may also benefit others in early abstinence from alcohol and others drugs by providing knowledge regarding potential resources from them.

If you are interested in participating, please contact Tiffany Amdahl by phone at (507) 252-0818 or email tmaresearch15@gmail.com.

Thank you for your interest,
Tiffany Amdahl LSW, LADC

Appendix D: Flyer to Reach Participants

You're Invited!



Who: Anyone over the age of 18 and in recovery from a substance use disorder for a year or more.

What: A research study to gain knowledge regarding the influence of exercise during recovery from a substance use disorder.

When: Almost anytime between December 16th and February 30th, 2016.

How: Participate in a 45-60 minute interview to share the impact, if any, of exercise on recovery from a substance use disorder. Contact Tiffany at 507-252-0818 or email at tmaresearch15@gmail.com.

Why: To get \$5 free to local coffee shop. To help a student graduate. To increase knowledge regarding recovery from substance use disorders.

