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Therapeutic Approaches to Recovery in West Virginia

Rachel A. Wattick

Thesis submitted
to the Davis College of Agriculture, Natural Resources, and Design
at West Virginia University
in partial fulfillment of the requirements for the degree of
Master of Science
in
Nutrition and Food Science

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ABSTRACT

Therapeutic Approaches to Recovery in West Virginia

Rachel A. Wattick

Substance use disorder (SUD) is a prevalent problem in the United States, with 19.7 million Americans aged 12 and older battling an SUD in 2017. Multiple factors influence the risk that someone will develop an SUD, including family history, childhood trauma, community factors, and poverty. West Virginia has the highest rate of overdose deaths in the nation, and individuals in WV are at high risk of SUD due to the aforementioned risk factors. There are a variety of treatment options available to someone with an SUD. These include outpatient or inpatient treatment, detoxification, therapeutic communities, and collegiate recovery programs. Despite the variety of treatment, there are high rates of relapse, with 40 to 60% of individuals relapsing within 12 months. Relapse prevention is increasingly implemented in recovery programs in order to decrease these rates. Relapse prevention strategies include the building of coping methods and skill-building to sustain recovery. These strategies can include peer-to-peer counseling, meditation, mindfulness, yoga, and other activities that aim to build a healthy recovery lifestyle. Nutrition is an important part of following a healthy lifestyle. Individuals in recovery often have nutrition-related disorders, such as malnutrition, poor mental health, and altered body composition. Incorporating nutrition programming into recovery has shown to improve recovery outcomes. Despite this, there is a lack of nutrition education, therapy, or emphasis in recovery programs. This study aimed to determine the role of nutrition in recovery programs throughout West Virginia through the perspectives of recovery program directors and individuals in recovery as well as determine what types of programming is prioritized in recovery. Two recovery programs, West Virginia University Collegiate Recovery Program (WVU CRP) and Morgantown Sober Living (MSL) participated in this study. Two program directors and 16 recovering individuals completed cognitive interviews/focus groups and surveys that gathered their perspectives on nutrition in recovery and what works in recovery. Thematic analysis using NVIVO 12 software generated 53 themes and 30 subthemes. Overall, WVU CRP directors and recovering individuals emphasized a holistic approach to recovery with a focus on wellness. MSL recovering individuals expressed a desire to achieve independence and normalcy. All participants cited the value of social support as being integral to maintaining recovery. The most support for nutrition in recovery came from WVU CRP directors. All recovering individuals noted its importance in recovery, but some expressed that it's not a priority early on. All recovering individuals expressed desire to learn life-skills including budgeting and eating healthily in order to improve their chances of long-term recovery. This research can help to improve the quality and offerings of recovery programs by informing potential nutrition and life-skills interventions for recovering individuals. Future work can determine how to best deliver nutrition education early in recovery.

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Chapter I: Introduction

I. Background: History and Treatment of Substance Use Disorder

Substance use is a prevalent problem in the United States, with 19.7 million Americans aged 12 and older battling a substance use disorder in 2017 [1]. A substance use disorder (SUD) occurs when the recurrent use of alcohol and/or drugs causes impairment, such as health problems, disability, and failure to meet major responsibilities is clinically significant [2]. The act of using substances stems from the need to feel good, to feel better, to enhance performance, and from curiosity and social pressure [3]. Genetics, including the impact of one's environment on gene expression, have a significant influence, accounting for about 40 to 60% of a person's risk of addiction [3]. In addition, environmental factors play a significant role. This includes a chaotic home environment, abuse, parental drug use, peer influence, the community's attitudes towards drugs, and poor academic achievement [3]. This is a costly issue, amounting to $740 billion annually due to loss in workplace productivity, healthcare expenses, and crime-related costs [4]. While this monetary loss is significant, the impacts of substance use goes beyond the economic burden. An individual suffering from substance use disorder have compromised physical and mental health, lack healthy relationships, and often have a co-occurring mental health disorder [5,6]. Because of the economic, personal, and community-level costs, reducing the prevalence of substance abuse is extremely important.

Substance Use Treatment

In the context of substance use, treatment can be defined as the external therapeutic process that clients are exposed to through education on addiction including group, individual, and family modalities [7]. The function of treatment is to provide structure, feedback, and coping skills to individuals, with the end goal of helping individuals cognitively assess their relationship with drugs and alcohol and develop a personal recovery program [7]. Across the United States, there are over 14,500 specialized substance abuse treatment facilities, which provide treatment plans such as counseling, behavioral therapy, medication, case management, and other forms of care [8]. These treatment facilities are for individuals entering recovery, which can be defined as a process of change through which people improve their health and wellness, live self-directed lives, and strive to reach their full potential [9]. There are multiple stages in recovery and a range of treatment settings in order to provide individuals options and a continuum of care [7].

Outpatient Treatment

Outpatient treatment is intended for individuals with limited or no risk of severe physical withdrawal. Individuals in outpatient treatment remain residing in their own homes when they attend sessions, usually in the evening. This allows them to maintain regular working hours and daily activities. When an individual is referred to outpatient treatment, they are given a list of treatment groups that meet every week. The most common method used in these programs is abstinence-based, rather than control or cutting back use [7]. Within this treatment plan, education, group therapy, and the Twelve Steps of Alcoholics Anonymous (AA) are integrated, and individual sessions occur weekly while group sessions occur multiple times a week. Often, family involvement is required. These programs are facilitated by addiction counselors, psychiatrics, and a consulting psychologist [7].

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Intensive Outpatient Treatment and Partial Hospitalization Program

Those in intensive outpatient treatment (IOP) still reside in their homes and maintain employment while attending treatment sessions, but require longer meetings and counseling. This is due to a more severe level of addiction and need for structure. A partial hospitalization program (PHP) requires more treatment contact hours per week than IOPs. Individuals in PHP display more severe symptoms than those in IOPs, but not severe enough to require full hospitalization. These programs include education and skills-based counseling in groups, case management, individual counseling, and psychiatric assessment and require a larger care team [7].

Detoxification

Detoxification is the medical component of treatment that requires a medical facility [7]. Sometimes, individuals try to self-detoxify despite the risks and challenges. Individuals enter a detoxification program similarly to the way they would check into a hospital. Detoxification provides structure through medical monitoring, medical staff, and a personalized protocol based on what substances were being used by the patient. The patient is treated by a wide range of healthcare workers and complete a biopsychosocial assessment to determine referral plans.

Inpatient Alcohol and Drug Treatment

Inpatient treatment requires patients to stay at a facility during treatment and consists of a variety of staff members- physicians, psychiatrists, nurses, leisure activities counselors, addiction counselors, social workers, psychologists, intake counselors, mental health counselors, and family counselors [7]. For an individual in an inpatient program, they typically attend group therapy twice a day, lecture-style education, leisure activities, employer and family meetings, complete assignments, meet with counselors, and attend AA and Narcotics Anonymous (NA) meetings. The length of stay varies across patients, but most enter because they have failed in an outpatient program and need more structure. Depending on the individual, they may need to enter detoxification before beginning the program [7].

Halfway House

After completing any of the treatments listed above, individuals can enter a halfway house that provides structured support. In this environment, individuals live with other people in recovery in a house or residence ran by licensed staff. This can include a house manager, counselor, a facility director, and food preparation specialists. Individuals are usually required to complete work and can live in the house for up to a year. They still attend weekly individual and group sessions [7].

Therapeutic Communities

Due to many state hospitals around the country closing as well as the increased incarceration of drug users, therapeutic communities (TCs) have increased from recognized community need. In TCs, inmates with substance use issues live separate from other inmates in order to provide rehabilitation to them. The goal of TCs are to provide education on addiction, healthy coping strategies, address employment issues, re-engage into society, and develop a support group [7]. Therapeutic communities can also occur outside of the prison system, such as on college campuses.

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Collegiate Recovery Programs

The implementation of Collegiate Recovery Programs (CRPs) is continually increasing across college campuses in the United States. CRPs are an example of a therapeutic community and arose from the high risk of relapse for recovering college students because of the "abstinence-hostile" college environment [10]. Among students attending any given college, it is estimated that 4% are currently in recovery from substance use disorder [11]. Students in recovery can be defined as "someone who experienced significant consequences in at least one area of life due to a history of substance abuse and subsequently made a voluntary commitment, either before or after college, to maintain a sober lifestyle and engage in activities promoting sobriety and overall wellness" [12]. These programs are built upon peer-to-peer support and a small, licensed faculty and staff with the goal of building a network of support to strengthen students in recovery and help them succeed academically [10]. These programs often include 12-step programs, individual and group counseling, dedicated facilities or residential housing, relapse prevention training, sobriety seminars, and alternative leisure activities [10, 12].

II. The Problem: Substance Use Treatment Efficacy

Overall, there is a lack of evaluation on best practices for substance use treatment [13]. In the past couple of decades, multiple reviews on substance use treatment efficacy have been published. A 2019 systematic review examined the evidence of effectiveness of residential treatment centers on substance use disorders [13]. Of the 23 studies examined, only moderate evidence that this treatment route has some effect on substance use outcomes was found [13]. Some aspects of residential treatment may be more beneficial than others, but this varies from individual to individual [14]. A 2004 review of studies on the effectiveness of residential treatment facilities found that overall, using an integrative approach that addresses mental health issues as well as substance use was more effective than not, but the studies were limited by methodological errors [15]. Another review in 2013 examined the effectiveness of therapeutic communities and found that TCs can improve the likelihood of sustained employment, psychological functioning, sustained abstinence, and more positive legal outcomes [16]. Evaluation of CRPs has shown relapse rates ranging from 0 to 25%, with a mean of 8%, as well as academic achievement of students in the programs surpassing those of the host institutions' [17]. Apart from the studies on CRPs, authors of the aforementioned reviews reported a lack of sound methodological measurements of program efficacy. However, we do know that multiple relapses are recognized as a normal part of the recovery process, with 40 to 60% of those receiving treatment relapsing within 12 months [14, 18]. This suggests the need for improving treatment methods.

III. Theory: Sustaining Recovery and Recovery Lifestyles

Improving treatment and preventing relapse is an important area of investigation, with relapse prevention therapy increasingly being implemented [7, 18]. This is important as the problem for many is not discontinuing the drug, but more so remaining sober without the coping skills and support that were used in their treatment program [7]. The process of relapse depends on the client's immediate environment, physical cravings, coping skills, and support [7]. Those who relapse tend to have a variety of issues that in tandem can inhibit their recovery process, such as compulsive behaviors, depression, and personality disorders [7]. Helping individuals in recovery build the skills to sustain their recovery once they finish their treatment program can

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help to prevent relapse. An approach that aims to sustain recovery and prevent relapse is the use of skill-building and coping mechanisms in recovery [10]. This includes the concept of building *recovery capital*, which can be defined as the amount of internal and external resources that can be accessed to initiate and sustain recovery [10]. Recovery capital can be built through a variety of methods that tend to be holistic in nature. A holistic approach is another form of long-term recovery that differs from the traditional treatment process. This utilizes a natural approach to drug rehabilitation, and may include therapies such as mindfulness, yoga, music, and art. Through these approaches, individuals in recovery are able to address their emotions, deal with them in a healthy way, and be a part of a community [10]. Preliminary studies have shown these therapies to be effective. For example, studies on individuals in substance abuse recovery programs who participated in music therapy sessions found an increase in positive emotions, a decrease in negative emotions, and reported that music therapy is valuable in exploring emotions and key for recovery [19, 20]. Mindfulness, which can be defined as a practice that intentionally directs attention to present-moment thoughts and feelings, has been found to increase healthy coping styles among individuals in recovery [18, 21]. The use of these types of therapies aim to build *recovery lifestyles* that have characteristics of healthy functioning and improved quality of life [22].

IV. The Approach: Nutrition in Recovery

While substance use programs are continually adding therapies that contribute to a healthy recovery lifestyle, there is often a lack of nutrition programming [23]. Individuals in recovery face a variety of nutrition-related disorders such as malnutrition, metabolic disorders, altered body composition, and poor mental health [23]. Malnutrition is defined as the disturbance of form or function arising from the deficiency of one or more nutrients [23]. Symptoms include poor mood, fatigue, muscle weakness, and increased subjectivity to illness [23]. Those with substance use disorder can be particularly susceptible to malnutrition for a variety of reasons, including a decreased appetite and taste for food and a damaged digestive tract causing an inability to absorb nutrients. Those with substance use disorder could also be nutrient deficient prior to addiction, as a recent study demonstrated that low micronutrient status increased the likelihood of substance use disorders [23]. These deficiencies can cause a cycle of relapse, as many micronutrient deficiencies, such as thiamin, magnesium, and vitamin D, are linked with poor mental health and cognitive function, and those with substance use disorder already often have comorbidities of anxiety and depression [23].

Often while in recovery, individuals have disordered eating patterns, which can lead to unstable blood sugar and mood. In addition, individuals often replace a substance addiction with a food or sugar addiction [7, 23]. There is similarity in the bio-psychological processes that underlie substance use and eating, triggering reward, salience, and motivation, and strongly influenced by emotional states and stress [23]. These reward systems and feelings can cause an individual in recovery to crave energy-dense foods similar to how they crave drugs or alcohol. Research has shown that individuals in recovery are particularly inclined to crave sweet foods [18]. This can lead to poor physical and mental health, and feelings of shame, anger, and guilt that occurred from substance addiction [7, 23]. This may also lead to weight gain, and someone in recovery may return to their previous drug addiction, such as cocaine, as a way to lose weight, creating a cycle of dangerous behaviors [7].

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Another key component in building a recovery lifestyle is having the skills and self-efficacy to consume a healthy diet. Therefore, culinary skills could be beneficial in the recovery process. In other populations, culinary workshops have been shown to increase skill-level, self-esteem, and autonomy, all of which are important to the recovery process [24]. Recent studies have shown that self-efficacy is key in sustaining recovery [25]. Despite the prevalent nutritional problems and preliminary studies showing positive impact of nutrition education on substance use therapy outcomes, it is very rare to find nutrition as part of treatment programs nationwide [23, 26]. As demonstrated by Figure 1, nutrition and culinary skills play a role throughout the

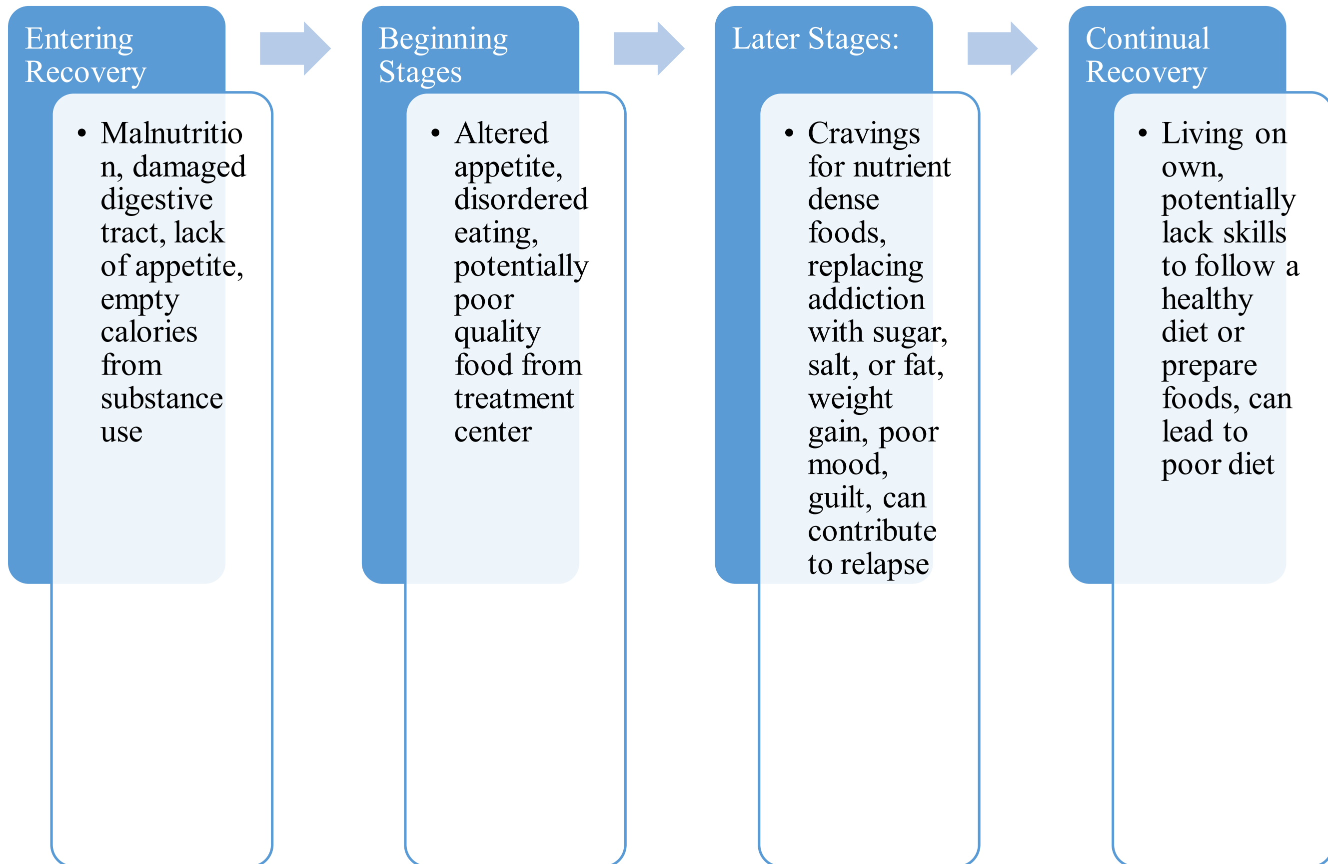

Figure 1. Nutrition Problems Throughout the Recovery Process

entire recovery process, and nutrition programming could be beneficial in any type of treatment stage or setting.

V. Preliminary Work: M4R2: Mountaineers for Recovery and Resilience

Beginning in fall 2017, a pilot feasibility study, M4R^2, was conducted in order to determine the feasibility of implementing a nutrition and culinary program in a recovery community [27]. This study was done in partnership with WVU Collegiate Recovery, which offers therapeutic programming such as meditation, yoga, and art to students in recovery from substance use disorders. Monthly nutrition and culinary education sessions aimed at needs for

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recovery were held at WVU Collegiate Recovery's location, Serenity Place. These sessions consisted of a nutrition lesson related to a recovery issue, such as increased cravings for sugar, and followed with a hands-on cooking lesson to demonstrate the nutrition concepts. At the beginning and end of each semester, participants completed a survey that measured their demographics program participation, depression, anxiety, coping skills, resilience, substance cravings, and overall health. Participants also completed lesson evaluations after each session. The present data is from 13 students who signed consent and participated in fall 2018. The majority of participants were over the age of 25, female (61.5%), white (76.9%) and had a mean BMI of 25.7 $\pm$ 5.06. The most commonly used therapies were meditation, art, and nutrition/culinary. The mean time spent at Serenity Place per week was 21.1 $\pm$ 14.97 hours. Almost one third (30.7%) of participants had mild depression, 46.2% displayed no anxiety symptoms, and 38% rated their health as fair. The mean resilience score (out of 5) was 3.44 + 0.91 and the mean craving score (out of 7) was 1.12. Higher nutrition and culinary program participation was associated with ratings of good health and the absence of depression symptoms ($p=0.034$ and 0.044, respectively). Participant evaluations of the nutrition/culinary sessions were overall positive, with most components, including "I feel that the culinary lesson increased my culinary skills and knowledge" and "I plan to use the skills or tips I learned tonight in the future" receiving a 10 out of 10. This preliminary study showed that a nutrition and culinary education program can be implemented in recovery programs and be beneficial towards recovery.

VI. Target Population

One area that is highly affected by substance use is West Virginia (WV), located in the heart of Appalachia, a region traditionally plagued by economic and health disparities [28]. When considering the aforementioned risk factors for substance use disorder (chaotic home environment, abuse, parental drug use, and community attitude), West Virginians are at high risk. For example, 26.1% of WV children aged 0 to 17 experienced two or more Adverse Childhood Experiences [29]. The unemployment rate in WV in 2019 is 4.7%, compared to the national rate of 3.6% [30]. WV overall has a high presence of risk factors, which increase the chance that an individual will become addicted, and low protective factors, which decrease a person's risk. For example, a risk factor for substance abuse may be community poverty, while a protective factor would be neighborhood resources [6]. Given the high poverty rate of 19.1%, and low access to health resources, this is an example of how WV has high risk factors and low protective factors [28, 31]. This has led to a widespread use of substances, and WV now has the highest overdose rate in the nation [32]. Despite the high prevalence of substance abuse, there are just 12 different drug and alcohol rehabilitation centers that offer long-term residential 90-day programs for drug and alcohol addicts [33].

Because of the lack of nutrition programming in recovery programs and the high prevalence of substance use disorder in West Virginia, this study aimed to evaluate the importance of nutrition from the perspectives on individuals in recovery and recovery program directors throughout West Virginia.

VII. Research Questions

1. From the perspective of program directors (PDs) and recovering individuals (RIs) in West Virginia, what is the importance of nutrition and recovery?
2. From the perspective of program directors (PDs) and recovering individuals (RIs) in West Virginia, what are the aspects or approaches that are prioritized in recovery programs?

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Chapter II: Methodology

Study Design

This study targeted a variety of recovery programs across West Virginia. Using a Community Based Participatory Research (CBPR) approach, recovery community perspectives were sought to inform future steps in implementing nutrition into recovery programs. Recovery program directors completed a survey and participated in a cognitive interview and recovering individuals completed a survey, focus group or cognitive interview, and were invited to complete a 7-day food log. Figure 2 demonstrates the study design.

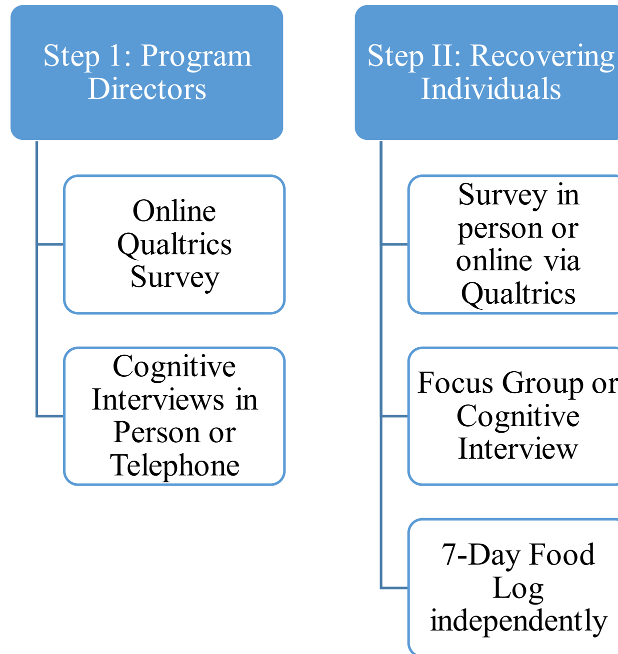

Figure 2. Study Design.

Institutional Review Board Approval

West Virginia University Institutional Review Board (IRB) approval was obtained prior to conducting this study. Personnel on the IRB are Dr. Melissa Olfert (Principal Investigator), Rachel Wattick (Co-investigator), Dr. Rebecca Hagedorn (Co-Investigator), and Ayron Walker (Co-Investigator).

Recruitment

In order to obtain participants, a list of recovery programs throughout West Virginia was generated by researching active programs in the state through website analysis. In addition, networking with known programs for referrals was conducted. The goal was to identify diverse programs in West Virginia to target. Recruitment emails were sent to program directors from each identified program, inviting them to participate. Due to many programs not allowing participants to access Wi-Fi or email, program directors were invited to share the opportunity with recovering individuals.

Incentives

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Recovery program directors were given a $25 American Express gift card for the completion of the cognitive interview and survey. Recovering individuals received study-branded merchandise for the completion of the focus group/cognitive interview and survey.

Participants

Those agreeing to participate completed informed consent prior to beginning the study. For program directors, consent was completed at the beginning of their online Qualtrics survey that was sent to them when they expressed interest in participating. For recovering individuals, written consent was obtained before completing the paper survey with researchers at their location. Two cognitive interviews were completed with recovering individuals remotely and these individuals completed consent online. To be eligible, recovery program directors had to have worked at their current job for at least 3 months, and recovering individuals had to be currently enrolled in some type of recovery program, whether it be residential, outpatient, inpatient, a halfway house, a therapeutic community, or a collegiate recovery program. All participants had to be at least 18 years of age.

Training of Research Team

Research assistants completed Collaborative Institutional Training Initiative (CITI) Research Ethics and Compliance Training prior to being involved with the study. Research assistants were trained by experienced graduate researchers on how to complete note-taking for the cognitive interviews and focus groups. Research assistants were also trained on how to use Nutritionist Pro to analyze dietary data. Practice sessions were conducted to ensure research assistants knew how to complete these processes. Figure 3 demonstrates the training process.

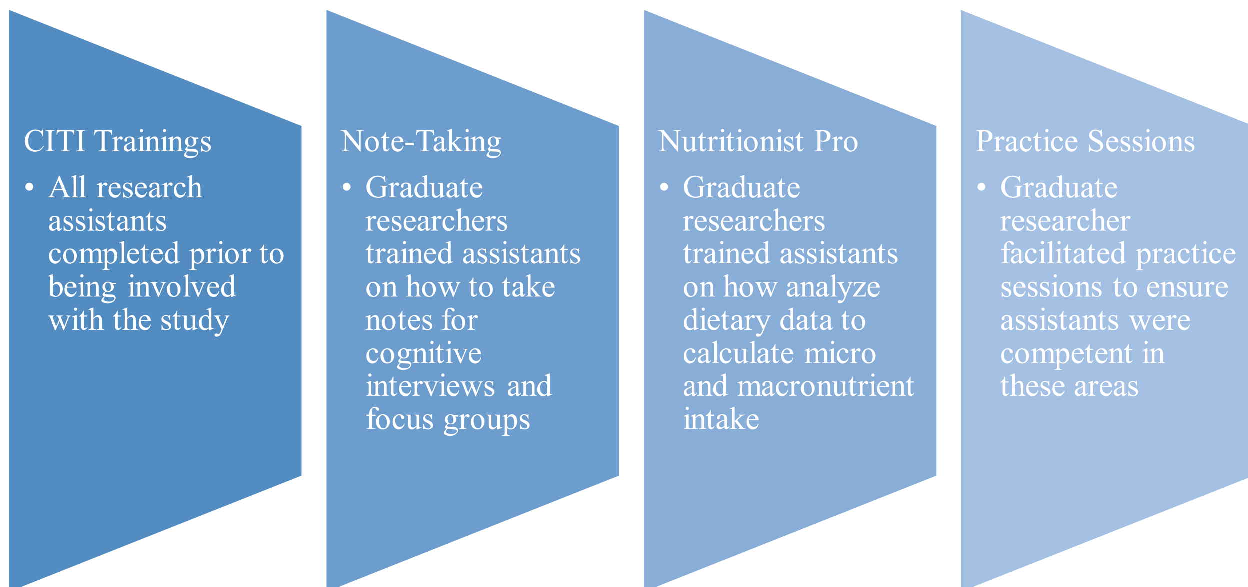

Figure 3. Training that occurred for all research assistants involved in study.

Measures

Recovery Program Directors

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Recovery program directors were invited to participate in a cognitive interview and complete a short survey. The cognitive interviews had the option to be completed either in person or over the phone and took 30-45 minutes. The survey was completed online via Qualtrics with a link included in the recruitment email and took 10-15 minutes to complete. The cognitive interview questions were created by study personnel to gather their perceptions of the role of nutrition in recovery, what they prioritize in their programs, and how they accomplish implementing different tenants of their program. A trained note-taker was present at all cognitive interviews to take notes of participant responses as the facilitator led the interview. All cognitive interviews were audio recorded for transcription purposes, with the participant having the option to request the cease of recording at any time. A copy of questions asked in the cognitive interview is available in the appendix. Survey data captured demographics, length of time at program, work history, and training related to recovery. A copy of the survey and questions is available in Appendices A and B. Figure 4 shows the measures for program directors.

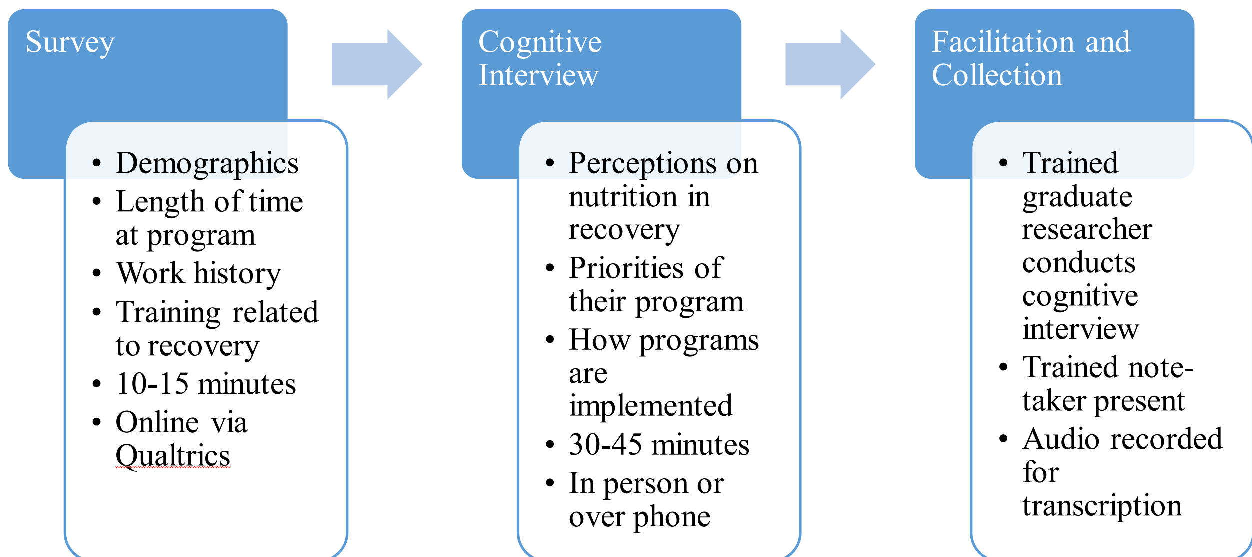

Figure 4. Measures to evaluate program director perceptions.

Recovering Individuals

Recovery program directors were invited to inform the individuals in their program of the opportunity to participate in the study. Individuals in recovery were asked to participate in a focus group which took 45-60 minutes, take a survey which took 10-15 minutes to complete, and fill out a 7-day food log, which took about 15 minutes to finish daily. Focus groups gathered information on their perceptions of the role of nutrition in recovery, what helps them in their recovery process, what would help them follow a healthy diet, and what they would like to see implemented. Survey data captured demographics, treatment history, self-rated health, nutrition self-efficacy, cooking self-efficacy, and readiness to change nutrition habits via questions that reflected the Transtheoretical Stages of Change Model. Nutrition self-efficacy was measured using a validated tool via 4 questions related to cooking habits where participants ranked their confidence on a 5-point scale [34]. Cooking self-efficacy was measured via a validated tool with 5 questions related to budgeting, time-management, and use of food preparation equipment [35]. Focus groups and surveys were completed at the location of their recovery program or virtually. At least one trained note-taker was present at all focus groups to take notes

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of participant responses as the facilitator led the focus group. The focus groups consisted of 4-6 participants at a time and were audio recorded for transcription purposes, with participants having the freedom to request the cease of audio recording. After completing these focus groups and surveys, recovering individuals were instructed on how to complete the food log and were left with it for one week to complete and send back to researchers. A copy of the focus groups questions, survey, and food log is available in Appendices A, B, and C. Figure 5 shows the measures for recovering individuals.

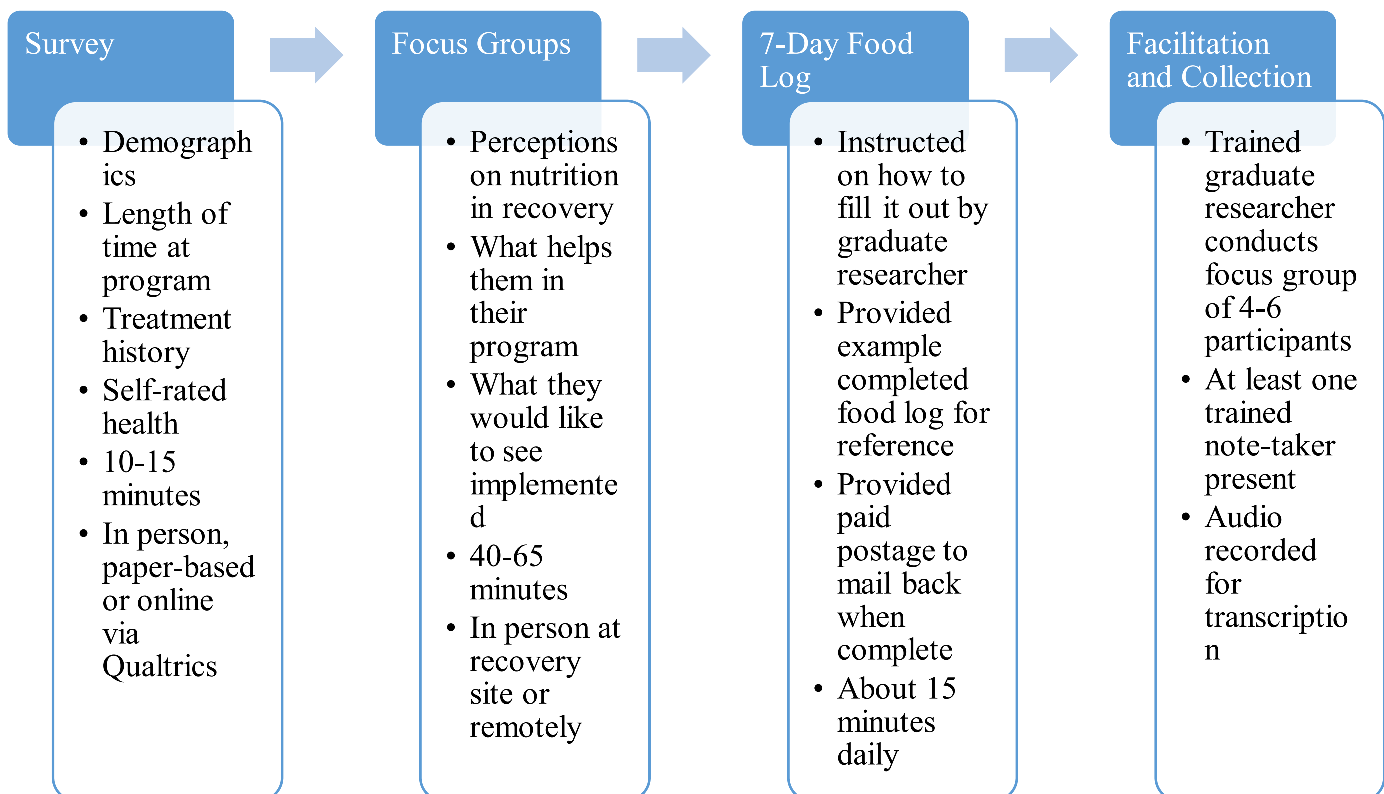

Figure 5. Measures to evaluate recovering individual perceptions.

Analysis

Survey Data

Survey data was analyzed using JMP Pro Version 12.0 to calculate basic frequencies (JMP®, Version Pro 12.2, SAS Institute Inc., Cary, NC, Copyright ©2015). Separate analysis was conducted for program directors and recovering individuals. Nutrition and cooking self-efficacy scores were summed, with higher scores indicating higher self-efficacy.

Cognitive Interviews and Focus Groups

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Focus groups and interviews were compiled into Microsoft Word and imported into NVIVO 12 software for thematic analysis. Analysis was conducted separately for WVU CRP Program Directors, WVU CRP recovering individuals, and MSL recovering individuals. Analysis was conducted a priori. Before content analysis began, topics were decided upon to guide data organization. Thematic analysis occurred within each topic. Two graduate researchers independently coded the data. A third researcher was used when necessary to break ties or disagreements. Themes were generated and discussed until all researchers agreed.

Potential Challenges

It was anticipated that the following challenges would occur: 1) difficulty recruiting individuals, 2) difficulty coordinating schedules, 3) missing survey data, 4) missing food log data or failure to complete food logs. In order to overcome these potential hurdles, the following steps were taken: 1) When recruitment via email was not successful, the snowball method was used. That is, once agreement from one site was obtained, they were asked to use word of mouth in their connections with other programs to recruit, 2) The timeline of data collection was extended in order to find time for all those involved to coordinate schedules, 3) The survey was made to be as low of burden as possible and does not include sensitive questions that may deter individuals from answering, 4) The food log was been designed with clear instructions and an example log completed for participants to follow. Table 2 shows the potential challenges and steps taken to address them.

Table 2. Anticipated Challenges and Steps Taken To Address.

Challenge	Steps Taken to Address
Difficulty recruiting individuals	Use of snowball method when email recruitment did not work
Difficulty coordinating schedules	Extension of timeline to ensure all interested sites could coordinate schedules
Missing survey data	Low-burden survey without sensitive information
Missing food log data	Researchers instructed participants on how to complete and are provided with a sample completed food log to follow

Potential Outcomes

It was anticipated that conducting this research would reveal recovery program directors and recovering individuals' perceptions of the role of nutrition, current eating habits of recovering individuals, and what recovery program directors and recovering individuals prioritize in their programming which would then inform future steps. If nutrition was of low importance, future steps would be determining how it can become of greater importance. If nutrition was of high importance but a nutrition program is not implemented, future steps would

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be determining how a nutrition program could be implemented. If there was currently a nutrition program in place, future steps would be determining how other programs could implement one or determining how to improve that nutrition program.

Timeline

	2019				2020				
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
IRB Approval	■								
Recruitment		■	■						
Conduct Cognitive Interviews/Surveys		■	■	■	■				
Conduct Focus Groups/Surveys/Food Logs		■	■	■	■				
Data input			■	■	■				
Quantitative Data Analysis					■	■			
Food Log Analysis					■	■			
Qualitative Data Analysis							■	■	
Writing							■	■	■
Thesis Submission									■

Chapter III: Results

Recruitment took place throughout October and November of 2019. In total, 12 recruitment emails were sent to 11 different recovery facilities throughout West Virginia. Email information could not be found for one facility; thus this facility was contacted via telephone. Researchers were invited to attend a board meeting for one of the recovery programs in November 2019, during which recruitment efforts took place and flyers were distributed to contacts of recovery programs around Morgantown, West Virginia. By mid-November, 2019, two sites, West Virginia University's Collegiate Recovery (WVU CRP) and Morgantown Women's Sober Living (MSL), had agreed to participate and data collection began. A total of three focus groups and two cognitive interviews were conducted with recovering individuals and two cognitive interviews were conducted with program directors. Two focus groups were conducted with MSL and 1 focus group and 4 cognitive interviews were conducted with WVU CRP, 2 of which were with the program directors.

Background of Participating Programs

WVU CRP started in 2016 and is located at Serenity Place, an on-campus location that is open to any WVU student, regardless of if they are in recovery. Serenity Place was previously located on WVU's Evansdale Campus, but moved to the Downtown Campus in 2018. Since moving, participants have stated that the program has grown and more students have become involved. Members of WVU CRP are generally further along in their recovery process and live

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independently. MSL is part of West Virginia Sober Living and has multiple halfway houses in the city, which are split into male and female homes. MSL members are generally in the early stages of recovery.

Participant Demographics and Recovery Characteristics

The mean age of recovering individuals (N=16) was 30.5 ± 6.6 years. A majority of participants (87.5%) were White, with 6.3% being Black and 6.3% being "Other". The majority were single (68.8%), employed full-time (56.3%), and all recovering individual participants were female. The mean Body Mass Index (BMI) was 29.2 ± 5.5 kg/m^2. The length of time in recovery ranged from 2 weeks to almost 2.5 years, with a mean of 1.2 ± 1.1 years. The mean length in the current program was 1.2 ± 1.5 years. Half of participants rated the quality of their current program as "excellent", with the other half rating it as "good". Most participants (56.3%) rated their health as "poor" before starting the program, and since being a part of the program, most rated their health as "good" (43.8%). For most participants (62.5%), their current program was not their first, with the mean amount of recovery programs previously enrolled in being 3.2 ± 1.3. A majority (87.5%) of participants reported having one or more mental health disorders, with many stating they have struggled with these their whole life. The most common mental health disorders were anxiety (85.7%), depression (78.6%), PTSD (42.9%), and bipolar disorder (35.7%). Most of those with a mental health disorder reported currently being on medication for it (85.7%). When asked if they are currently or planning to follow a dietary pattern, most (56.2%) indicated "No, I have no plans right now for starting to follow a diet or meal plan." The mean nutrition self-efficacy score was 14.4 ± 4.5 out of a possible 20. The mean cooking self-efficacy score was 14.8 ± 4.2 out of a possible 20. A majority (62.5%) were categorized as food insecure. Tables 3 and 4 below list demographic information and characteristics of recovering individuals.

The two program directors both worked at WVU CRP. One director had worked there for 5 years and the other director had worked in his position for less than a year. Both individuals had multiple jobs related to recovery previously and both had multiple certifications in recovery and counseling.

Table 3. Recovering individual demographic information.

Variable	Frequency (N)	Percentage (%)
Race		
White	14	87.5%
Black/African American	1	6.3%
Other	1	6.3%
Marital Status		
Single	11	68.8%
Married	2	12.5%
Divorced	2	12.5%
Separated	1	6.3%
Gender Identity		
Female	16	100%

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Employment Status		
Employed full time	9	56.3%
Employed part time	3	18.8%
Unemployed and currently looking for work	2	12.5%
Student	1	
Unable to work	1	6.3%
		6.3%
Income Level		
None	4	25.0%
Less than $20,000	5	31.2%
$20,000-$34,999	1	6.3%
$35,000-$49,999	2	12.5%
$50,000-$74,999	2	12.5%
$75,000-$99,999	2	12.5%
Program Quality Rating		
Excellent	8	50.0%
Good	8	50.0%
Average	0	
Poor	0	
Health Before Joining Program Rating		
Excellent	1	6.3%
Good	1	6.3%
Average	5	31.3%
Poor	9	56.3%
Health Since Joining Program Rating		
Excellent	3	18.8%
Good	7	43.8%
Average	6	37.5%
Poor	0	
Mental Health Disorder		
Yes	14	87.5%
No	2	12.5%
Medication		
Yes	14	85.7%
No	2	14.3%
Readiness to Change Diet Habits		
Pre-Contemplation	9	56.3%
Contemplation	2	12.5%
Preparation	2	12.5%
Action	3	18.8%
Food Security Status		
Food Secure	6	37.5%
Food Insecure	10	62.5%

Table 4. Characteristics of recovering individuals.

Variable	**Mean ± SD**

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Age (Years)	30.5 $\pm$ 6.6
BMI (kg/m^2)	29.2 $\pm$ 5.5
Length in Recovery (Years)	1.2 $\pm$ 1.1
Length in Current Program (Years)	1.2 $\pm$ 1.5
Number of Previous Recovery Programs	3.2 $\pm$ 1.3
Nutrition Self-Efficacy	14.4 $\pm$ 4.5
Cooking Self-Efficacy	14.8 $\pm$ 4.2

Thematic Analysis

In total, 53 themes and 30 subthemes were generated. Below are the themes broken down by each topic. The first three topics were specific to WVU CRP Program Directors.

Program Goals

Table 5. Thematic analysis of program goals.

Program Goals		
Program	Themes	Subthemes
WVU CRP Directors	1. Wellness (2) 2. Recovery Meetings (1) 3. Academic Support (2)	

Program directors' descriptions of their current program goals and offerings included three themes: *Wellness, Recovery Meetings*, and *Academic Support*. The overarching goal of the program and the first theme was *Wellness*, with a director stating "A healthy lifestyle is the basis of the program and helping people replace drugs with something healthy." This included offering therapeutic programming such as meditation, outdoor adventure, book study, music therapy, and more. The second theme of *Recovery Meetings* emerged from directors also stating that they offer programming typically seen in recovery, saying "We have a lot of recovery-specific programming from NA to AA, Smart Recovery, Refuge recovery, and we also do a group for family members of adult children that are alcoholics." The third theme is a newer addition to WVU CRP, *Academic Support*, in which tutors are available for English, writing, math, and physics. The program director expressed excitement in being able to offer this, with plans to increase this support in the future. Table 5 displays the themes for this topic.

Reasons for Implementing Current Programs

Table 6. Thematic analysis of reasons for implementing current programs.

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Reasons for Implementing Current Programs		
Program	Themes	Subthemes
WVU CRP Directors	1. Creating New Outlets (1) 2. Academic Goals (2)	

Program directors were asked why they chose the current programs they did and how they contribute to their goals as a program, leading to two themes, *Creating New Outlets*, and *Academic Goals*. Directors described the importance of participating in new activities while in recovery, with one saying "Just nature, getting out and walking, just a lot of creativity, finding you know, like, hobbies. That was why we put in art, music, and just trying things and trips." The other director, who had been the lead person starting WVU CRP, discussed why they urged for this program to be started by the university and emphasized the importance of the academic side, saying "I saw the importance of everything and the life young people were having where they were trying to quit and couldn't especially in a university community and I also saw how many people couldn't finish their degree. It really does bring students back to school." Table 6 displays the themes for this topic.

Implementation Resources

Table 7. Thematic analysis of implementation resources.

Implementation Resources		
Program	Themes	Subthemes
WVU CRP	1. Trained Personnel (1) 2. Student-Driven (2) 3. Community Support (3) 4. Lack of Administrative Support (2)	

The final topic that was specific to program directors discussed what type of resources are required to implement their programming, leading to four themes: *Community Support*, *Student-Driven*, *Lack of Administrative Support*, and *Trained Personnel*. The director who had been the driving force behind starting WVU CRP reflected on the importance of community involvement and cited that as the most important in getting the program established, saying "It's great because people came and showed up to help. You know, addiction touched everybody involved and I think that the donations just came naturally because people just wanted to make things happen for people. They knew that the shame and guilt and watching their family and neighbors go through that cycle is tragic so I think it's really just one of the things where people came and brought their talents and it worked." The other director discussed how important student involvement is in keeping the program running, saying "Really a lot of it comes down to the students and our student leaders make all the differences in the world when it comes to

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manpower." WVU CRP has several student workers who help to staff Serenity Place, its on-campus location, and some help to design and implement new programming. This director also stated the importance of having trained personnel for certain programs, such as Smart Recovery. Unfortunately, directors stated a lack of support by administration, stating that "the university feels it isn't their mission." Table 7 displays the themes from this topic.

Defining Recovery

Table 8. Thematic analysis of defining recovery.

Defining Recovery		
Program	Themes	Subthemes
WVU CRP Program Directors	1. Individual Recovery Needs (2) 2. Healthy Lifestyle (5) 3. Restructuring Thought Processes (4)	2a. Making Healthy Choices (3) 2b. Whole Body Wellness (2) 3a. Emotional Responses (3) 3b. Broader Perspective (1)
WVU CRP Recovering Individuals	1. Relearning (3) 2. Focus on Wellness (5)	2a. Self-Discovery (2) 2b. Healthy Coping Mechanisms (2) 2c. Whole Body Wellness (1)
MSL Recovering Individuals	1. Relearning (3) 2. Independence (4) 3. Desire for Normal (5) 4. Self-Care (3)	

All participants were asked to give their definition of recovery, leading to the development of nine themes. The first theme, *Individual Recovery Needs*, was generated from program directors, in which the importance of unique recovery pathways was described, with one director saying "I think it depends on the individual, I mean everybody comes in here with a whole unique set of needs and strengths and abilities and even different personalities. So, to me, there is not a universal hierarchy." The second theme from program directors, *Healthy Lifestyle*, had two subthemes of *Making Healthy Choices* and *Whole Body Wellness*. One director stated the importance of "making healthy, well-informed choices" in order to "lead a meaningful and purposeful self-directed life." They stated the importance of a holistic approach to wellness, saying "People who really come and engage in this, they're trying to get healthy, and it's not just exercise- it's everything." The third theme, *Restructuring Thought Processes*, had two subthemes of *Emotional Responses*, and *Broader Perspectives*. One director discussed how recovering individuals need to learn how to respond in a healthier way to their emotions, saying they try to "promote that mindset of trying to figure out how to work differently and how to respond

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differently, and in more healthy and more constructive ways." This director also emphasized the importance of broadening perspective, saying "Addiction tends to make you very myopic in your world view. It was just you and your drug."

Recovering individuals in WVU CRP also discussed the importance of health, leading to the theme of *Focus on Wellness* with three subthemes of *Self-Discovery*, *Healthy Coping Mechanisms*, and *Whole Body Wellness*. One participant described the continual process of recovery, saying "I feel like a lot of people who aren't in recovery who haven't had issues with substance abuse, I don't know if they see how important that is to like keep working on yourself and keep getting better." A key part of this as described by participants is "Helping people develop better coping mechanisms for dealing with mental health related things or just triggers in general." Participants noted that this involves *Whole Body Wellness*, from "going to meetings, having a sponsor, doing the 12 steps of recovery, going to therapy, eating a balanced diet, praying and meditating." WVU CRP participants discussed how "basically recovery has been a process of like relearning how to do absolutely everything", leading to the development of the theme of *Relearning*. This theme was shared by MSL participants, with one stating "Every day is a new day, but I think I have a chance out there in life. Only because I think I have learned how to be without using drugs and being a productive human being." A second theme developed from MSL was *Desire for Normal*, with many participants saying they yearn to do normal things. One participant described it as "I don't want to be rich because I'm never going to be those things but like a little tiny house, a car, just normal things people have. I just want a small little normal life. That's what I'm trying to achieve." Participants from MSL described how important taking initiative on their own is, leading to the theme of *Independence*, relating to getting help for their SUD, seeking a job, and getting out into the world. The final theme from MSL was *Self-Care*, in which participants described putting themselves and their recovery first, with one saying "I think we all need to have [self-care]. I think we all neglect ourselves." Table 8 displays the themes from this topic.

What Helps Recovery

Table 9. Thematic analysis of what helps recovery.

What Helps Recovery		
Program	Themes	Subthemes
WVU CRP Program Directors	1. Social Support (3) 2. Serenity Place (2) 3. Dynamic (1)	
WVU CRP Recovering Individuals	1. Social Support (10) 2. Wellness (7) 3. New Hobbies (1)	2a. Holistic Approach (2) 2b. Benefits of Meditation (5) 2ba. Emotional and Psychological (3) 2bb. Self-Care (2)

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MSL Recovering Individuals	1. Social Support (6) 2. Accountability (5)	1a. Friendship (2)

A major theme that was shared from all three participating groups was *Social Support*. A WVU CRP director stated that "I feel like it helps people make friends and if someone cares about you that's great." Recovering individuals in WVU CRP contrasted it to the feeling of loneliness while using drugs, saying "So much of substance abuse when you're in the moment doing it is like isolation and not talking about it and feeling like nobody understands you so doing the exact opposite is empowering." In MSL, participants described how being in recovery helped them realize they're not alone. One participant said "It's crazy that we all went through the same kind of stuff but not the same kind of stuff. So it's cool to be able to relate with people. For me, I have been in the closet for a long time about my drug addiction but coming here I have opened up a lot more. It's the support that you have from everybody in the house." MSL also had a subtheme of Friendship, as many participants described finally having real friends once joining their program.

WVU CRP directors felt that two other strengths of their program was their space and continually evolving program, leading to the themes of *Serenity Place* and *Dynamic*. One director said "I think it's the space, having our own space and making it available as much as we can really provide sort of that home on campus atmosphere." Related to their thoughts on tailoring recovery needs to the individual, one director stated "It's dynamic and creative, and you know a different group of students will come in and they will have different interests and talents and abilities and we give them the space to cultivate the programming that they're interested in so there is always some changed involved and it's a fluid program." Recovering individuals in WVU CRP again emphasized the importance of *Wellness*, which had the subthemes of *Holistic Approach* and *Benefits of Meditation*. *Benefits of Meditation* had two subthemes as well, *Emotional and Psychological*, and *Self-Care*. Participants described the contrasting approach of WVU CRP and programs they were previously in, saying "I really like the emphasis overall on wellness because I was in NA before and I feel like with the programs that they have here I need to be focusing on because it is more advance than "let's stop doing drugs and hang out" and instead it's like "let's eat better and meditate and go hiking and all of those things that I think have been really good for me recovery, to start these new healthy things." Many participants described how helpful meditation has been for retraining their thoughts and taking care of themselves. One participant said "Before everything I did was just crap, like I didn't care about myself in any aspect, you know, mentally, spiritually, physically, so I just feel better about myself when I meditate because it's helping with my anxiety." The final theme from WVU CRP was *New Hobbies*, with one participant saying "Learning how to have fun without drugs was a *big* component to me maintaining long-term recovery." MSL participants continually described the importance of *Accountability*. Many stated it's the reason for their sobriety, with one saying "If I wasn't in the house, I think I would have already used but since I do have the accountability and my friends around me, they would know instantly if I used and I would feel horrible to go back to those situations 'cause they were awful." Table 9 displays the themes from this topic.

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Problems with Current Program and Ways to Improve

Table 10. Thematic analysis of problems with current program and ways to improve.

Problems with Current Program and Ways to Improve		
Program	Themes	Subthemes
WVU CRP Program Directors	1. Faculty Support (1)	
WVU CRP Recovering Individuals	1. Lack of Secularity (3) 2. Increase Awareness (3) 3. Life Skills Training (4) 4. More Pathways (2) 5. Increased Access (3)	3a. Nutrition (3) 3b. Budgeting (1)
MSL Recovering Individuals	1. Unequal Treatment (4) 2. Strict Rules (4) 3. Lack of Transparency (5) 4. Overcrowded Living (3) 5. Life Skills Training (5) 6. Equal Access to Resources (3)	6a. Access to licensed therapist (2)

Although participants rated their current program as "excellent" or "good", there were several areas identified as needing improvement, and some frustrations about their current program expressed, particularly from the MSL participants. The one theme generated from WVU CRP program directors was *Faculty Support*, as one director stated "I would also like faculty involvement and sort of connection in really developing relationships with different faculty members because I know that can have a real profound impact on a student's time at WVU and I really think that's a powerful asset to students in recovery."

WVU CRP recovering individuals also had some suggestions for improvement. The most common suggestion was *Life Skills Training*, with subthemes of *Nutrition* and *Budgeting*. One WVU CRP participant reflected on her previous time at MSL, expressing that she wishes nutrition had been a part of that program, and another who is a peer recovery coach there saying "I think that with WV Sober Living more of a nutritional piece would be cool because for that level of care they are that's not generally going to be offered but I think that's important for transitioning out of this reckless lifestyle." She also expressed the lack of budgeting skills there, saying "Horrible budgeting habits. It's like right from the beginning, it's laying the foundation of what it's going to be like when they move out. So I think that would be really beneficial to

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program participants." Another area of concern was the *Lack of Secularity*, with participants stating that not all of them identify with religion and spirituality, yet it's included in most recovery programs. Another theme was the need for *Increased Awareness*, with a participant stating "I didn't know that it was there until my doctor at Chestnut Ridge told me about it and I had no clue they were even there, and the program was available to get into for help." Although Serenity Place moved to the downtown location, participants felt that multiple locations would be beneficial because "drugs are everywhere in Morgantown", which led to the theme of Increased Access. Finally, the final theme from WVU CRP recovering individuals was *More Pathways*, with a participant stating "I feel like there being more options like more pathways for recovery would be good. I don't know, I just think 12-step just kind of dominates it, I just think that's the culture of this country. But I think a lot of people could benefit from other things."

MSL participants had more areas for improvement than WVU CRP. Problems included a *Lack of Transparency*, as they felt that administrators and leaders made decisions and implemented policies that they didn't feel made sense and didn't provide reasoning. One participant said "We're just a number. We're just an easy way for people to make money. They are making money off a disease that I have." Another common issue was *Overcrowded Living*, stating they are "packed in there like rats" and that there aren't enough resources for how many women are living there. Participants also expressed not everyone had to follow the same guidelines, leading to the theme of *Unequal Treatment*. A participant said "There are some people dying to get a bed there but can't because they have been filled with someone who is making them a lot of money and they won't kick them out but they will kick someone out arguing about stupid things. It's totally different-the inside of it." Participants felt frustrated with some of the policies, with the theme of *Strict Rules* emerging. They described some of the policies as "adult grounding" happens when "Somebody leaves something somewhere like a cup on the counter. Like normal people don't leave dishes in the sink? (laughs). It's very very strict rules." There were two main areas of improvement, developing themes of *Life Skills Training*, like WVU CRP described, and *Equal Access to Resources*, with the subtheme of *Access to Licensed Therapist.* Participants wished they had more guidance on how to do things "how to grocery shop, pay bills, like budgeting classes and things like different classes that really teach you how to start life over again, honestly we are starting from scratch." Participants reported that access to resources, such as a peer recovery coach or a therapist, depended on how much they were paying. One participant said "My dad paid $15,000 [for therapy] and he's not even a real therapist." Another participant said "I think everyone should have the same opportunities to have access without having to pay an arm or a leg, parents having to pay an arm or leg. It should be available to everyone and people that aren't able to pay. It's just all kind of backwards." Table 10 displays the themes from this topic.

Role of Nutrition

Table 11. Thematic analysis of the role of nutrition.

Role of Nutrition		
Program	Themes	Subthemes
WVU CRP Program Directors	1. Modeling Behavior (3)	

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	2. Necessary for Recovery (3) 3. Implementing in Recovery (3)	2a. Handling Cravings 2b. Getting healthy again 3a. Addressing Costs (1) 3b. Consistency (1) 3c. Social Benefits (1)
WVU CRP Recovering Individuals	1. Self-Care (6) 2. Implementing in Recovery (14)	1a. Feeling Better (2) 1b. Breaking Cycle of Cravings (2) 1c. Preventing Weight Gain (2) 2a. Helpful to Recovery (2) 2b. Implement Later in Recovery (5) 2c. Start Simple (1) 2d. Shopping, Budgeting, and Meal Planning (6)
MSL Recovering Individuals	1. Different Priorities (4) 2. What Helps to Follow a Healthy Diet (5)	 2a. Time-Management (3) 2b. Cost-Effective Options (1) 2c. Group Mealtime (1)

Overall, WVU CRP, both program directors and recovering individuals, seemed to value nutrition as contributing to a successful recovery more than MSL participants did. WVU CRP program directors discussed the importance of *Modeling Behavior*, saying "We have a responsibility as a program to at least encourage reasonable eating habits by what we provide here in our space." Both directors expressed support of nutrition, developing the theme of *Necessary for Recovery*, with subthemes of Handling Cravings and Getting Healthy Again. One director said "You've got to get your body healthy to overcome anything, let alone cravings." They described what was needed to support the program, which led to the development of the theme *Implementing in Recovery* with subthemes of *Addressing Costs*, *Consistency,* and *Social Benefits*. One director said "Another thing would be consistency or repeated programming because obviously eating is somewhat fundamental and you know to me, the more prominent the nutritional emphasis is, the more likely it will be integrated by students." The other director described nutrition and culinary programming as a "conversation starter" and "that's when people start to be comfortable with each other."

Recovering individuals in WVU CRP also expressed practicing healthy nutrition habits or being interested in learning how to. One theme that emerged was *Self-Care*, with subthemes of *Feeling Better*, *Breaking Cycle of Cravings*, and *Preventing Weight Gain*. A participant said "I know that I don't eat healthy, but that does play a big part in being tired and wore out and then you want to get something to give you some energy, you know what I mean, and then you get

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back into that cycle where you are using again." Participants discussed with problems with quick weight gain early in recovery, and a participant reflected on women being concerned with their weight while she was house manager at MSL, saying "this one girl all the time was like 'I just want to go back on meth so I can lose like 20 pounds." Participants discussed what would be useful in a nutrition and culinary course for recovery, leading to the theme of *Implementing in Recovery* with subthemes of *Preventing Weight Gain*, *Helpful to Recovery*, *Implement Later in Recovery, Start Simple*, and *Shopping, Budgeting, and Meal Planning*. A participant said that "[a nutrition and cooking program] would have been helpful, I mean not only do you need to teach budgeting but, you know, to help them figure out what kind of food to buy." Another participant said "I think it'd have to be simple, would be the main thing is starting really simple. So that it doesn't seem overwhelming cause to me I think about healthy eating and I'm like [heavy sigh] there are just too many factors. It's just too hard." Participants were largely concerned with how to shop and budget for healthy food, saying "maybe like ways to buy the right amount of things that you're actually going to use so you're not wasting money or wasting food." Participants also described when it could be implemented, with most saying it should be implemented later, but a couple wishing they had it early in recovery. Some described that there were too many things to worry about early in recovery. One said "I think that, you know, maybe when they have been in recovery for a little bit then you know, thinking about nutrition at like the 6-month mark would be a good time to think about it. I mean people are trying to survive through the cravings at the beginning and adding nutrition would be beneficial but I'm just not sure if people would be willing and open to it early on in addition to everything else they have to be doing."

This was reflected with the MSL participants, with one theme being *Different Priorities*. One participant stated "I think it could aid in recovery, but we're not at the point where we'd consider nutrition a priority. We spent many years putting unhealthy drugs in our body but nutrition isn't something we think about." MSL participants also discussed what would be beneficial, leading to the theme of *What Helps to Follow a Healthy Diet*, with subthemes of *Time-Management, Cost-Effective Options,* and *Group Mealtime*. One participant said "We all came from a fast-paced life and you kind of get stuck in that. You have to learn how to slow down and we are all at different levels of recovery." Other participants stated that they felt overwhelmed by the price of healthy eating and would like to know how to eat healthily on a budget and plan meals themselves, saying "I see meal plans on the internet but that is so expensive, I want to be able to do it myself." Table 11 displays the themes from this topic.

Diet and Cooking Early in Recovery

Table 12. Thematic analysis of diet and cooking early in recovery.

Diet and Cooking Early in Recovery		
Program	Themes	Subthemes
WVU CRP Recovering Individuals	1. Fast and Convenient Foods (2) 2. Changes in Appetite (2)	
MSL Recovering Individuals	1. Changes in Appetite (2) 2. Minimal Cooking (4)	

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	3. Eating Disorders (3) Togetherness (2)	

Although WVU CRP Directors briefly described what they saw people in recovery eating, such as “pizza and caffeine”, the majority of this conversation occurred with recovering individuals. WVU CRP recovering individuals described their eating habits early in recovery as characterized by *Fast and Convenient Foods.* One participant said “When I first got clean I was doing what I did when I was using, so I was drinking like, Mountain Dew and Coke, like, constantly, like, all day every day, eating the most sweets, all the fast food, all that stuff. About a year into getting clean I gained a lot of weight.” The other theme, from both groups, was *Changes in Appetite*. A WVU CRP participant described it as “Oh yeah, there was a heck of an appetite. I mean when I was using, I didn’t eat at all. So I mean when I was using I didn’t eat anything at all and drink, I didn’t drink anything either, and then I started coming off the drugs, I found I was eating more.” MSL participants also described changes in appetite leading to concerns with weight gain, with one participant saying “I think everybody gained a bunch of weight. I need to get it off. I think the problem is when you’re not getting high, you just want to sit around and eat.” Another contributing factor to the weight gain was eating out a lot and rare meal preparation, leading to the theme of *Minimal Cooking*. A participant said “They eat out every day. Grubhub knows our exact location and the delivery people know our names.” A few MSL participants said they used to have eating disorders, with one saying “It is still very present in my life. I eat salads all the time, huge bowl of salad.” The final theme from MSL was *Togetherness*, with participants expressing they enjoyed the times they did cook or eat together. Table 12 displays these themes.

Diet and Cooking Later in Recovery

Table 13. Thematic analysis of diet and cooking later in recovery.

Diet and Cooking Later in Recovery		
Program	Themes	Subthemes
WVU CRP	1. Quick and Convenient Foods (3) 2. Increased Cooking at Home (3)	

WVU CRP recovering individuals, for the most part, stated their eating habits haven’t evolved much, leading again to the theme of *Quick and Convenient Foods*. A participant stated that “I don’t eat McDonalds or Dairy Queen anymore, I eat Thai or poke bowls [all laugh], so it’s evolved a little.” Another said “Mine hasn’t really evolved. I have whatever is fast, whatever I can throw in the microwave or I think the most recent thing I spent the most time on is like, Tuna Helper.” A couple of participants described learning how to cook, leading to the theme of *Increased Cooking at Home.* A participant said “I learned a lot of stuff from looking things up and asking people about it and now I don’t drink pop at all anymore and I make food almost every night and I’ve been trying to make healthier food and vegetables and stuff.” Table 13 displays the themes on this topic.

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Chapter IV: Discussion

This study aimed to collect data on the recovery population in West Virginia and gather insight into the role of nutrition during recovery and what works in recovery from the perceptions of recovery program directors and recovering individuals. Recovering individuals were in different stages of recovery, with some being very early in recovery and others having been sober for multiple years. Program directors both had prior experience working with the recovery population, with one having been the driving force in starting WVU CRP. Recovering individuals overall thought highly of their programs, with all participants ranking their programs as "excellent" or "good". Participants also felt the program improved their health since they joined. Almost all of the participants had one or more mental health disorders, most commonly depression, anxiety, PTSD, and bipolar disorder. When assessing readiness to change diet habits, most were in the pre-contemplation stage of the Transtheoretical Stages of Change Model, meaning they had not thought about making any changes to their diet.

Qualitative analysis showed similarities and differences in perceptions of recovery and nutrition's role in recovery between the three study subgroups. WVU CRP directors and recovering individuals emphasized the importance of wellness in recovery. These individuals described a whole-body approach to recovery, including outdoor activities, meditation, and nutrition. MSL recovering individuals put more of an emphasis on recovery being about relearning how to live life, learning how to take care of themselves and live independently, and ultimately working towards a "normal life". WVU CRP and MSL participants discussed developing better coping mechanisms and learning how to handle potential triggers. When discussing what helps recovery, all study subgroups cited social support as being integral to maintaining recovery. This was heavily discussed by recovering individuals from both WVU CRP and MSL, who stated that not feeling alone is a key part to recovery. MSL participants also felt that they hold each other accountable in the house and this plays a significant role in maintaining their sobriety.

Despite their positive ratings of their programs, there were areas for improvement identified. WVU CRP participants expressed a need for more pathways to recovery, stating that the spirituality and religious emphasis integrated into most programs isn't suitable for everyone. They also expressed a need for greater awareness on campus and in the Morgantown community that their program exists. MSL participants had more areas for improvement, stating they felt there needed to be better transparency between administration and the women in the program, more equal treatment and access to resources, and more space. Both programs emphasized the need for life-skills training, particularly in the form of finances and budgeting. WVU CRP participants who had previously been a part of MSL felt that they would have benefited from nutrition education early on while they were in the program and that participants there now would benefit as well. However, nutrition education was not discussed as a top priority for current MSL participants as they currently had different priorities related to getting healthy again and maintaining sobriety. WVU CRP participants expressed they had felt that way too early on, but most had now realized the importance of nutrition for recovery. However, despite the noted importance of nutrition education, all participants cited barriers to healthy eating that they would like to overcome. This included the need to start simple, learn how to plan and budget for healthy

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food, and managing time to prepare healthy food. Program directors had the most support for nutrition aiding recovery, stating it is needed to get healthy again and to form healthy habits, rather than replacing a previous addiction.

The findings from this study are in line with findings from previous studies on this topic. Harris et al discuss the importance of building recovery capital, which are the internal and external resources that can be accessed to sustain recovery [10]. This concept was reflected in responses from all participants, who stated the need to build healthier coping mechanisms and restructure thought processes, and relied heavily on social support and accountability in order to sustain their recovery. These responses are examples of internal and external methods of maintaining sobriety in this population. Laudet et al stated the importance of building a recovery lifestyle, characterized by healthy behaviors and decision-making [22]. Participants, particularly those involved in WVU CRP, discussed the importance of achieving a healthy lifestyle, which they felt included aspects such as meditation and eating healthily. MSL participants were more so focused on learning how to be independent and adjust to a sober lifestyle, which mainly included putting recovery first.

When discussing nutrition, WVU CRP directors and recovering individuals seemed to feel nutrition was more important to recovery than MSL participants did. Individuals in the beginning stages of recovery do not seem concerned with nutrition at that point. In a similar qualitative study that investigated the eating patterns of current and former heroin users [36], individuals stated that while using drugs and early in recovery, nutrition was not a priority or a concern. Another study found that individuals in recovery and on probation ranked their recovery, employment, and housing as their top three priorities, with food intake, but not quality, being fourth [37]. Similarly, MSL participants stated that nutrition is currently low on their list of priorities, despite the fact that they discussed they noticed significant weight gain while in recovery. MSL participants reported ordering food frequently, with minimal cooking and healthy eating. WVU CRP participants reported that early in recovery, they often had quick and convenient foods as well as sweets and sugar-sweetened beverages. Both study subgroups noted a change in appetite when entering recovery, transitioning from barely eating, to eating frequently due to increased hunger or boredom. This aligns with previous studies on this population [36, 38-41] in which processed, quick, and sweet foods are commonly consumed when entering recovery. There are several potential reasons for the relationship seen between dietary habits and substance use. One possibility is an individual's sensitivity to reward. Tapper et al examined whether sensitivity to reward predicts a range of potentially health-damaging behaviors [42]. They examined the different types of sensitivity to stimuli, including reward-drive, fun-seeking, and reward responsiveness. They found that those with higher sensitivity to reward were more responsive to appetizing foods, especially those higher in fat and sugar, and also had higher alcohol intake and frequent binge drinking [42]. Another explanation could be that conditioned environmental cues can trigger both food and drug-seeking behaviors, and addictive drugs tap into the same process and systems that motivate and control adaptive behaviors, including eating [43].

Studies that have collected biochemical data have found deficiencies in several key nutrients in this population [38, 39]. Deficiencies in these and other nutrients can cause significant physical and mental health problems, which can be detrimental to recovery. There are

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similarities and differences in how alcohol or drugs can cause these deficiencies. These deficiencies can be caused by damaged digestive tracts due to alcohol abuse through dysfunctions such as mucosal damage in the mouth, esophagus, and stomach, delayed gastric emptying, and bacterial overgrowth [23]. In addition, alcohol can inhibit absorption of certain nutrients such as thiamin, magnesium, zinc, and iron. Further, conversions of ethanol to acetic acid and retinol to retinoic acid compete for the same metabolic pathway, putting alcohol-dependent individuals at high risk for vitamin A deficiency [23]. While these issues occur with drug use, this is largely due to an altered appetite and low food intake while using drugs, with some inhibited gastric motility and increased excretion [23]. Examining how dietary habits and nutrient status differ depending on what an individual is recovering from is an important area of future research.

Although previous studies and this study found that nutrition is not a priority early in recovery, WVU CRP participants felt that they would have greatly benefitted from nutrition education when reflecting back on their beginning stages of recovery. All participants emphasized the importance of establishing life skills early in recovery and stated they would like to be better trained on topics such as budgeting, including budgeting for healthy foods. This is a potential point of intervention for incorporating nutrition into the recovery process. Life-skills training could be incorporated into recovery programs such as halfway houses, in which members are beginning to learn how to live life again and become independent. Participants in this study stated the importance of taking a holistic approach to their recovery. Other recovery programs have implemented physical activity into their job-attainment training programs and found this addition to aid in the recovery process and easing back into the community, showing an example of addressing multiple issues in an intervention [44]. Another study examining what works in recovery suggested to include more resources beyond the peer-approach [45], which is what MSL relies on. Addressing life-skills, including financial and nutrition skills, can be a way to move beyond this approach and address multiple aspects of a successful recovery. However, in order to increase participant benefit from nutrition education, they need to view nutrition as helpful to their recovery. Therefore, a nutrition intervention would need to include strategies to increase their awareness of the linkage between nutrition, recovery, and mental health. In addition, moving this population further along in the Transtheoretical Stages of Change would need to occur in order for them to take full advantage.

This study has several limitations. First, there was a small sample size. Despite contacting each West Virginia recovery location whose information could be found, consistent responses were only received from two locations. The use of the snowball method of recruitment was intended to be used to gain more recovery locations, but recruitment efforts were interrupted by COVID-19 social distancing and quarantine measures. Therefore, data collection had to stop and analysis began. Second, only program directors from one location participated. MSL program directors declined to participate. Third, this study population was from one city in West Virginia, and more rural recovery programs need to be investigated to determine their perceptions on this topic as well. Finally, although most participants took a food log to fill out, none were returned. This is likely due to the burden of completing a 7-day log, as well as the lack of incentive provided to complete it. Future work will explore other methods of collecting dietary data from

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recovering individuals as well as continue to investigate this topic with a more diverse study population.

Chapter V: Conclusion

This study adds to the current literature on nutrition habits of recovering individuals being characterized by increased appetite, frequent consumption of quick, sweet, and convenient foods, and minimal cooking. Further, this study found how definitions of recovery and priorities in recovery differ at various stages of recovery and between program directors and recovering individuals. Across all study subgroups, social support and learning how to make independent choices were cited as integral to recovery. In addition, recovering individuals expressed desire for life-skills training early in recovery. To our knowledge, this is the first study to investigate what is needed to enhance recovery outcomes from multiple perspectives. The findings from this study can be used to inform recovery programming and design nutrition interventions tailored for recovering individuals. Establishing an evidence-based nutrition and life-skills program for recovering individuals can help to contribute to a healthy recovery lifestyle and decrease relapse rates in West Virginia.

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Appendix A

Cognitive Interview Questions for Program Directors

Before beginning, read the following aloud to the participant:
Thank you for signing up to participate in this study. You have had the opportunity to read consent and have provided your signature to be a part of this study. As a reminder, this interview will be audio recorded for transcription purposes. Your name will not be linked to the recording and transcribed information will not be identifiable. However, at any point that you would like to stop recording, you are free to ask so. In addition, you do not have to answer all of the questions and can request to skip any question you do not wish to answer. If you are ready, we can begin.

1. What are the current tenants of your program?
2. What led you to implement the current tenants of your program? (such as meditation, mindfulness, yoga, etc)
    a. Probe: Why do you believe these are important in the recovery process?
    b. Probe: Do you believe there are any tenants that do not have much value or efficacy?

3. What types of resources are required to implement these programs?
    a. Probe: How much do you think these programs cost?

4. How do you try to achieve sustainability of the practices learned by individuals participating in these programs?

5. What do you believe the individuals in recovery enjoy about your program?

6. Do you currently address nutrition needs in your program?

7. What is your view on nutrition's role in the recovery process?

8. What is your view on providing nutrition and culinary education and skill-building in your program?
    a. Probe: Do you think people in recovery would benefit from these types of programs?
    b. Probe: Do you feel that people in recovery have the skills to prepare a meal?

9. What do you foresee as barriers to implementing a nutrition and culinary program?
10. What types of resources do you think would be required to implement a nutrition and culinary program?

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Focus Group/Cognitive Interview Questions for Recovering Individuals

Before beginning, read the following aloud to the participant.
Thank you for signing up to participate in this study. You have had the opportunity to read consent and have provided your signature to be a part of this study. As a reminder, this interview will be audio recorded for transcription purposes. However, at any point that you would like to stop recording or leave the focus group, you are free to request so. In addition, you do not have to answer any of the questions. If you are ready, we can begin.

1. How has this program impacted your recovery process?

2. What aspects of the program do you find to be most beneficial?
   a. Probe: How has (insert specific program here, ie meditation) helped you in recovery?
   b. Probe: Are there any aspects that you don't believe to be beneficial? Why?

3. What other services would you like to see in this program?

4. How would you define a healthy, sober lifestyle?

5. Do you believe this program helps you to follow the lifestyle you described?

6. Describe what you eat in a typical day here.

   a. Probe: Is there anything that you would change about what you eat here? Why?

7. What is your view on the role of nutrition in recovery?

8. What is your view on the role of cooking in achieving a healthy lifestyle?

   a. Probe: How do you feel about your ability to prepare a meal?

9. Is achieving proper nutrition of importance to you in your recovery process?
10. What do you consider a healthy diet?
    a. Probe: How do you feel about your ability to make healthy food choices?

11. What are barriers for you to follow a healthy diet?

12. What would help you to follow a healthy diet?

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Appendix B

Survey Questions for Directors

Q1 What is your age?

____

Q2 What is your race/ethnicity?

- ▢ White Non-Hispanic (1)
- ▢ Black or African American (2)
- ▢ Hispanic or Latino (3)
- ▢ Native American or American Indian (4)
- ▢ Asian or Pacific Islander (5)
- ▢ Other (6)

Q5 What is your gender identity?

- ◯ Male (1)
- ◯ Female (2)
- ◯ Nonbinary (3)
- ◯ Other (4)

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Q8 How long have you worked at your current program?

____

Q6 Is the current program you work at your first job with a recovery program?

- ○ Yes (1)
- ○ No (2)

Display This Question:

If Is the current program you work at your first job with a recovery program? = No

Q7 How many recovery programs have you worked for?

____

Q10 How would you rate the quality of this program?

- ○ Excellent (1)
- ○ Good (2)
- ○ Average (3)
- ○ Poor (4)

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Q12 What type of training do you have related to recovery and counseling?

____

End of Block: Demographics

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Survey Questions for Recovering Individuals

Q1 Q1 What is your age in years?

____

Q2 What is your race/ethnicity?

- ☐ White Non-Hispanic
- ☐ Black or African American
- ☐ Hispanic or Latino
- ☐ Native American or American Indian
- ☐ Asian or Pacific Islander
- ☐ Other, please describe: ______________________

Q3 What is your marital status?

- ○ Single (Never married)
- ○ Married, or in a domestic partnership
- ○ Widowed
- ○ Divorced
- ○ Separated

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Q4 What is your current employment status?

- Employed full time (40 or more hours per week)
- Employed part time (up to 39 hours per week)
- Unemployed and currently looking for work
- Unemployed and not currently looking for work
- Student
- Retired
- Homemaker
- Self-employed
- Unable to work (please specify reason):_________________

Q5 What is your current annual income?

- None
- Less than $20,000
- $35,000 to $49,999
- $35,000 to $49,999
- $50,000 to $74,999
- $75,000 to $99,999
- Over $100,000

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Q6 What is your current height in inches?

____

Q7 What is your current weight in pounds?

____

Q8 What is your gender identity?

○ Male

○ Female

○ Nonbinary

○ Other: ____

Q9 Are you currently in recovery from a substance use disorder? (If no, please skip to Question 20)

○ Yes

○ No

Q10 IF YOU ANSWERED "YES" TO QUESTION 9: How long have you been in recovery? (in weeks, months, or years)

____

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Q11 IF YOU ANSWERED "YES" TO QUESTION 9: Have you ever been in a substance abuse rehabilitation program?

- ◯ Yes
- ◯ No

Q12 IF YOU ANSWERED "YES" TO QUESTION 9: Are you currently enrolled in a recovery program or part of a recovery group?

- ◯ Yes
- ◯ No

Q13 IF YOU ANSWERED "YES" TO QUESTIONS 9 **AND** 12: Please list the name of the program or group you are in:

____

Q14 IF YOU ANSWERED "YES" TO QUESTIONS 9 **AND** 12: How long have you been enrolled in your current program?

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Q15 IF YOU ANSWERED “YES” TO QUESTIONS 9 **AND** 12: How would you rate the quality of this program?

- Excellent
- Good
- Average
- Poor

Q16 IF YOU ANSWERED “YES” TO QUESTIONS 9 **AND** 12: How would you rate your health before you entered this program?

- Excellent
- Good
- Average
- Poor

Q17 IF YOU ANSWERED “YES” TO QUESTIONS 9 **AND** 12: How would you rate your health since being a part of this program?

- Excellent
- Good
- Average
- Poor

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Q18 IF YOU ANSWERED “YES” TO QUESTIONS 9 **AND** 12: Is the current program you are enrolled in your first recovery program?

◯ Yes

◯ No

Q19 IF YOU ANSWERED “YES” TO QUESTION 9 AND “NO” TO QUESTION 18: How many recovery programs have you been enrolled in?

____

Q20 Do you currently have a mental health disorder? (If no, please skip to Question 31)

◯ Yes

◯ No

Q21 IF YOU ANSWERED “YES” TO QUESTION 26: Please list your mental health disorder(s) here:

____

Q22 IF YOU ANSWERED “YES” TO QUESTION 26: Has your mental health disorder(s) been diagnosed by a professional?

◯ Yes

◯ No

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Q23 IF YOU ANSWERED “YES” TO QUESTION 26: How long have you had this/these mental health disorder(s)?

____

Q24 IF YOU ANSWERED “YES” TO QUESTION 26: Do you currently take medication for your mental health disorder(s)?

- ◯ Yes
- ◯ No

Q25 Are you currently trying to follow a healthy dietary pattern?

- ◯ No, I have no plans right now for starting to follow a diet or meal plan
- ◯ I plan to start within the next 6 months
- ◯ I plan to start within the next month
- ◯ I am already following a diet or meal plan

Q26 IF YOU ARE ALREADY FOLLOWING A DIET OR MEAL PLAN: How long have you been following a diet or meal plan?

____

Q27 IF YOU ARE ALREADY FOLLOWING A DIET OR MEAL PLAN: What diet or meal plan do you follow?

____

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Q28 IF YOU ARE NOT CURRENTLY FOLLOWING A DIET OR MEAL PLAN: What do you feel is preventing you from starting to follow a dietary pattern or meal plan?

____

Q29 Please answer the following questions regarding your current cooking habits by marking the circle that most applies to you.

	Not At All Confident	A Little Confident	Neutral	Somewhat Confident	Extremely Confident
I can cook a nutritious meal	○	○	○	○	○
I can cook a meal in a short amount of time	○	○	○	○	○
I can cook a nutritious meal without spending a lot of money	○	○	○	○	○
I can follow a recipe	○	○	○	○	○

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Q30 Please rate your proficiency in the following areas by marking the circle that most applies to you:

	Very inadequate	Inadequate	Adequate	Very adequate
Cooking skills	○	○	○	○
Budgeting money to buy food	○	○	○	○
Using various appliances for food preparation	○	○	○	○
Selecting food in local stores	○	○	○	○
Time management while preparing foods	○	○	○	○

Q31 Please answer how the followings statements applied to you over the past 12 months:

	Often true	Sometimes True	Never True
Within the past 12 months, I worried whether my food would run out before I got money to buy more	○	○	○
Within the past 12 months, the food I bought just didn't last and I didn't have money to get more	○	○	○

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Appendix C

Food Log

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Please use this daily log book to track your food consumed for each day of the week. Please be as detailed as possible, including measurements and brands if known.

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Date: 09/16/2019

M T W Th F S Su

Example Log

Time	Food and Drink (Be Specific)
9:30am	Breakfast: 1 cup Raisin Nut Bran with ½ cup of 1% milk 1 cup of hot tea with 1 tbsp of honey
10:30am	Snack: 6 oz vanilla yogurt (Dannon Light and Fit) with ¼ cup of frozen raspberries
12:30pm	Lunch: 3 tbsp of peanut butter (Jif) and 2 tbsp of raspberry jelly on 2 slices of oatnut bread 1 cup of baby carrots 1 macintosh apple 1 can of Lipton Iced Tea
3:00pm	Snack: 1 cup of baby carrots with ¼ cup roasted red pepper hummus (Sabra)
6:30pm	Dinner: 6oz salmon with ½ cup of green breans 1 cup of spring mix salad with ¼ cup of cucumber and tomato with 1 tbsp of Italian dressing (Kraft)
	Snack: N/A
Notes: Throughout the day I drank 52 oz of water	

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Date: ___/____/______
M T W Th F S Su

Time	Food and Drink (Be Specific)
Notes:	

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