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Substance use disorder (SUD) is one of the most detrimental health, social, and economic problems in the United States. Limited studies suggest providing tailored nutrition education during SUD treatment correlates with positive recovery outcomes. The University of Kentucky Nutrition Education Program conducted two focus group sessions to explore and determine educators' instructional and programmatic needs who deliver nutrition education to clients in substance use recovery throughout Kentucky. The study team identified four emerging themes and several subthemes related to Nutrition Education Program educators working with clientele in recovery. The four emerging themes included: (1) current experiences working with the audience, (2) relevant components in the current curriculum, (3) suggested new and expanded resources for future curriculum, and (4) guidance to assistants new to the audience. Our research findings contribute to the development of new programmatic materials that are better suited to meet clients' needs in recovery and ultimately improve SUD recovery outcomes. With increased knowledge on this emerging research topic, the University of Kentucky Nutrition Education Program will directly benefit Kentucky residents who suffer from SUD and experience its detrimental social and health implications.

Keywords: substance use recovery, nutrition education, Extension, focus groups

Introduction

Substance use disorder (SUD) is one of the most detrimental health, social, and economic problems in the United States (Manuel et al., 2017). SUD contributes to severe long-term health complications, is associated with increased mortality (Jeynes & Gibson, 2017), and has grown into a significant public health concern (Centers for Disease Control and Prevention [CDC], 2021). It is estimated that 21.5 million people have been diagnosed with SUD in the United States (Manuel et al., 2017). In 2019, the National Institute on Drug Abuse reported that nearly 50,000 people in the United States died from opioid-related overdose (CDC, 2021), which is reflective of the growing number of individuals suffering from SUD. Further, the United States

spends an estimated \$78.5 billion a year when accounting for the cost of healthcare, lost productivity, SUD treatment, and criminal justice involvement (Florence et al., 2016).

According to the Substance Abuse and Mental Health Services Administration (SAMHSA), it is estimated that in Kentucky, roughly 100,000 residents reported being dependent on or using illicit drugs in 2015 (SAMHSA, 2015). Kentucky also exhibits the fourth-highest drug overdose death rate in the United States, and these death rates are occurring at an alarming rate of 37.2 per 100,000 people (CDC, 2021). This may be due to overexposure to legal opioid prescriptions, as the opioid dispensing rate in Kentucky was the seventh highest in the United States as of 2017 (CDC, 2017). The opioid epidemic has taken a shocking toll on the overall health of Kentucky residents as well as other aspects of society, including the criminal justice system, health care system, workforce, and child welfare (Kentucky Chamber Workforce Center, 2019).

Devastating effects of the opioid epidemic are more severe for limited-resource audiences who are less likely to have access to support and resources, like SUD treatment centers, and are more likely to die from an overdose (Altekruse et al., 2020). Those of low socioeconomic status often face barriers to accessing resources that support basic needs, such as adequate housing, transportation, clothing, food, and education (Duffy & Baldwin, 2013; Ompad et al., 2012; Walher & Otis, 2014). Lack of access to these resources or “recovery capital” correlates with SUD relapse (Walher & Otis, 2014). Hence, it is critical that efforts are made to increase clients’ access to these resources as well as social support and life skills education to improve SUD recovery outcomes.

There is a scarcity of research and best practices regarding how SUD recovery settings can enhance clients’ access to recovery capital, especially SUD recovery-focused nutrition education. The limited research available indicates that providing tailored nutrition education and establishing a well-balanced dietary intake during SUD treatment correlates with positive SUD recovery outcomes by reducing food insecurity and building skills necessary for successful independent living (Chavez & Rigg, 2020; Cunningham, 2016; Grant et al., 2004; Jeynes & Gibson, 2017; Kaiser et al., 2008; Li et al., 2016; Schroeder & Higgins, 2016). In addition, there is a growing body of evidence that SUD has specific implications on the nutritional status of individuals in recovery different than the general population (Jeynes & Gibson, 2017; Kaiser et al., 2008). It is especially relevant to study the inclusion of nutrition education in SUD treatment since there are no established specific nutrition assessments or tailored nutrition education guidelines for SUD treatment centers or other relevant settings (Jeynes & Gibson, 2017).

In recent years, implementing agencies for two United States Department of Agriculture (USDA) funded nutrition education programs targeting limited-resource audiences, the Supplemental Nutrition Assistance Program-Education (SNAP-Ed) and the Expanded Food and Nutrition Education Program (EFNEP), have led the charge in providing nutrition education in SUD treatment settings focused on food resource management skills (e.g., abilities to stretch food

dollars and make healthy choices despite limited budgets) and diet quality (e.g., increased consumption of fruits and vegetables) (Puma et al., 2020).

The University of Kentucky Nutrition Education Program (NEP), a part of the Kentucky Cooperative Extension Service, is an implementing agency for SNAP-Ed and EFNEP and is increasingly offering nutrition education programs at various SUD treatment settings across Kentucky. There is a growing need to explore how to best support nutrition educators through research and interventions due to the lack of information regarding the appropriate strategies to address SUD recovery clients' nutrition education needs. It is particularly important to identify nutrition educators' instructional and programmatic needs in delivering programming to resource-limited audiences within SUD treatment settings.

The purpose of this study is to examine the experiences and instructional needs of NEP educators who deliver or have delivered nutrition education in residential and nonresidential SUD treatment facilities. This study aims to analyze NEP educators' perceptions of their programmatic and curriculum needs in this area to identify and highlight the potential components of what a SUD recovery-focused nutrition education curriculum should include (i.e., what should be the core components, topics, lessons, and how it should be delivered and implemented). These findings will inform the development of new programmatic materials or adaptations of an existing curriculum that are better suited to meet the needs of clients receiving nutrition education within the SUD treatment setting.

Methodology

Research Participants

NEP educators were surveyed in September 2019 to gauge their experience teaching nutrition education to SUD recovery clients and their interest in participating in a focus group. Thirty-five of the seventy-six respondents expressed interest in participating, and twenty-four were purposively sampled based on level of experience, type of facility (residential or nonresidential) where they delivered nutrition education in the past, and recommendations from supervising agents (i.e., agents who supervised NEP educators). Of those twenty-four, nineteen female NEP educators participated in two focus groups.

The first focus group included twelve NEP educators who had previous experience in nonresidential settings (e.g., outpatient clinics, drug court) with SUD recovery clients. The second focus group included seven NEP educators who primarily worked in residential settings (e.g., residential recovery programs, correctional complexes) with SUD recovery clients across Kentucky. Both focus group sessions lasted approximately ninety minutes. Participation was entirely voluntary, and no incentive was provided.

Data Collection

Two face-to-face focus group sessions were conducted in January 2020 to understand the factors that inhibited and/or facilitated NEP educators' experience when working with clients in SUD treatment centers, correctional facilities, and other SUD treatment settings. For this topic, two focus groups were adequate to reach data saturation. Topics discussed during the focus groups included the settings of the SUD treatment facilities and barriers related to site restrictions and the impact on clients' abilities to select or purchase their own food; successful strategies, activities, and materials used to involve SUD recovery clients in programming; and the skills and nutritional information most needed by these clients. The focus group protocol also asked educators to offer suggestions for additional topics they would like to see in a new curriculum. A trained moderator facilitated the focus groups (P.P.) using a developed moderator guide, and another research team member took notes (C.T.). Use of the focus group data for research purposes was approved by the University of Kentucky Internal Review Board (Protocol #64062).

Data Analysis

Focus group sessions were audio-recorded and transcribed verbatim. Participants consented to the recording of the discussions, and transcripts were anonymized. Two trained independent coders (P.P. and C.T.) used the constant comparison method to identify and organize relevant and consistent themes and subthemes and discussed similar quotes based on the focus group moderator guide, which represented topics of primary interest (Boeije, 2002; Creswell, 2013). Transcripts from each listening session were analyzed in NVivo 10 Pro® qualitative analysis software to determine the overarching themes from each focus group session transcript by using a series of thematic analysis procedures (Boeije, 2002; Creswell, 2013). At the conclusion of the coding process, both coders discussed their derived codes and came to a consensus. There was 97.75% thematic agreement between both coders based on the comparison query calculation using the Kappa coefficient.

Findings

Findings were similar across both groups working in different SUD treatment settings. The study team identified four independent but connected themes related to the work of NEP educators working with clientele going through SUD treatment in both residential and nonresidential settings. The four emerging themes identified were (1) current experiences working with the audience, (2) relevant components in the current curriculum, (3) suggested new and expanded resources for future curriculum, and (4) guidance to educators new to the audience. Each of these themes included several subthemes. Representative quotes have been incorporated throughout the themes.

Theme 1: Current Experiences Working with Substance Use Recovery Clients

NEP educators described their current experiences working with the SUD recovery audience to provide insight into how best to approach future programming with this specific audience. Within this theme, seven subthemes were identified: (1) class setting, (2) class composition, (3) behavioral observations, (4) client questions, (5) client food access, (6) current challenges, and (7) helpful partnerships.

Both class setting and class composition were identified as factors that impact how nutrition materials are delivered to SUD recovery clients. Class setting, or the type of facility where the program took place, impacted how education was implemented. Certain rules and standards existed that impacted how or when programming was offered. For example, whether NEP educators provide education in a correctional facility or through SUD treatment centers may influence how and when the program is implemented. In particular, the class settings' rules and standards may impact nutrition education facilitation through scheduling variation and limited access to certain resources for food demonstrations, including lack of permission to use knives in some settings.

Similarly, class composition, or the individuals who comprised the classes, could vary drastically depending on the class setting. It was also apparent that there were differences in the gender composition of classes in different SUD treatment settings. Some NEP educators had experience working with all-male or all-female groups, mixed-gender classes, pregnant women, or women with infants and suggested that delivery may need to be adjusted to meet the perceived needs of the class composition. NEP educators also reported several observations regarding gender differences in the behavioral patterns of the clients, including their reactions to the NEP educators and classes. These observations may lead to a future adjustment of NEP delivery and curriculum to meet the perceived needs of each gender. For example, NEP educators consistently mentioned that female clients were more likely to demonstrate a lack of trust and acceptance of the NEP educator. One NEP educator shared:

I think the women are more off, they hold themselves back, you know they don't want you to come in there. The men's groups [is] just there, they interact better. I think it takes a long time to win the women over than the men.

Similarly, NEP educators expressed that, regardless of gender, clients in their classes often demonstrated a short attention span, had difficulty sitting for long periods, requested smoke breaks, and frequently had trouble focusing on the material.

NEP educators also reported that clients had specific nutrition-related questions and wanted to know more about how to regain their health. According to the educators, many client questions were related to ways to become healthier or how to build muscle mass quickly with protein and supplements. Educators also mentioned that they received questions regarding weight loss, gain,

or maintenance from both male and female clients. For example, with male clients, one NEP educator shared, “They’re really interested in that and how to get healthy, but they actually want to know more about building their muscles and they’re all about getting in shape and protein.”

While with women clients, one NEP educator shared:

I find that the women seem to really crave sugar as they’re coming off, so they drink a lot of the soda pops and they want a lot of sugar and cigarettes. So, it’s kind of like they’re substituting their addiction for the sugar and the cigarettes.

NEP educators recognized that food access within communities impacts the availability of healthy food choices for clients. Understanding the local food system was insightful for NEP educators when communicating with SUD recovery clients about how and where to purchase healthy foods to promote food security and food access. One NEP educator described, “That’s the sad part. You know, I live in a rural county. We don’t really have public transportation so some of them are shopping at the convenience store by their house.”

NEP educators experienced unique challenges when implementing existing nutrition education curricula that are typically not experienced with other populations or in other settings. For example, they mentioned strict guidelines or stipulations on what cooking utensils and resources can be brought in to support a program or topic. Cooking items that could be perceived as dangerous or as a weapon are often not allowed within SUD treatment centers, correctional facilities, or other facilities providing treatment. NEP educators shared they were unable to bring in knives to demonstrate knife skills or even use staples to collate handouts in some settings such as correctional complexes. One NEP educator mentioned, “It’s so important for them to actually use knives, but if you’re not bringing knives you can’t learn how to, like, make things. I just think that’s, like, a big bummer.”

With their current experiences, NEP educators emphasized the importance of helpful partnerships that enhanced the existing curriculum or provided content that the clientele found interesting. Specifically, one NEP educator shared about the opportunities to bring in other Extension professionals, such as Extension Agents or Extension Specialists with differing expertise, to share subject matter content related to nutrition education. One NEP educator shared:

I use my agents. I’ve had the Ag (Agriculture) agent come out and do grilling safety classes. The Hort (Horticulture) agent, we’ve been involved in a raised garden bed project for the last two years. My FCS (Family and Consumer Sciences) agent comes in and helps with budgeting when she’s needed. So yeah, I just pull the whole staff in.

For this first major theme, several factors were identified that have practical implications for lesson planning and content delivery. For the second theme, the focus shifts to the relevance of educational content thoroughly discussed by NEP educators.

Theme 2: Relevant Components in Currently Offered Curriculum

Several aspects of the existing NEP curriculum were identified as effective and appropriate to convey nutrition education concepts to SUD recovery clientele. Six subthemes emerged: (1) icebreakers, (2) reinforcements, (3) cooking skills, (4) food safety, (5) budgeting, and (6) materials and resources.

NEP educators reported that icebreakers and other engaging activities effectively created a sense of community and trust among the group. One NEP educator shared, “I always do icebreakers with them and take one little incentive and whoever wins gets that incentive. You’d think it was a million bucks. They really like getting that.”

Similarly, reinforcement items (i.e., items that clients can keep that are relevant to the lesson, such as kitchen tools or cooking utensils), were popular and were sought after by participants. One NEP educator explained, “I give them each time (reinforcements). That’s the first thing they ask when I come in ‘What did you bring us today besides the recipe you brought?’ They seem to really be interested in coming back for that item.”

According to the NEP educators, relevant topics within the existing curriculum that resonated with SUD recovery clients included basic cooking skills, food safety, and budgeting. Based on the NEP educators’ comments, emphasis on building skills in the kitchen seemed to increase client confidence and willingness to try new recipes, especially among those with limited experience preparing food. One NEP educator noted, “With the fix it, cook it and eat it within an hour (recipes), they are like, ‘Oh, I can do this!’ so it gives them self-confidence. Lots of them tell me they have never cooked before.”

NEP educators noted that their clients were also interested in learning skills related to food safety and cleaning. NEP educators expressed that the food safety content is incredibly relevant with minimal food preparation experience among SUD recovery clients. For example, one NEP educator shared:

One of my biggest ones (questions) is “why can’t I eat my pizza that’s set out all night” or then you have to explain to them that it’s got cheese on it, it’s got vegetables on it. Or they will ask “well my green beans are vegetables why can I leave them out?” and you can obviously if they’re not cooked. Just you know, simple things that they honestly don’t understand that they cannot leave these foods out of the refrigerator for more than two hours.

Further, budgeting seemed to be a necessary component for the SUD recovery audience, who may struggle with a reliable income. One NEP educator explained:

And saving money is important because when they're in rehab they don't have the income. Then they get out and they may not have a job for a while, and they are trying to make SNAP dollars stretch. And all of mine, at the end of class, they say they really learned a lot on saving money and how they can budget.

Finally, NEP educators discussed several materials and resources within the existing NEP curriculum that should be retained if a new program is developed. Specifically, NEP educators identified the consumption of sugar-sweetened beverages as a major issue with their clients and noted the need for educational materials related to this topic. According to one of the NEP educators, "The Rethink your Drink is such an eye-opener. Because they come in with monsters, cokes, and big swigs and the drink is really an eye-opener."

The "Rethink your Drink" reference refers to a lesson within the NEP curriculum that addresses sugar-sweetened beverages. Although some existing content was relevant, there were still expressed needs for new and expanded resources to meet clientele needs.

Theme 3: Suggested New and Expanded Resources for Future Curriculum

Within this theme, NEP educators discussed the topics and considerations they perceived as necessary components of any new curriculum targeting SUD recovery audiences. Three subthemes were identified: (1) nutrition-body-connection, (2) health issues related to substance use recovery, and (3) materials requested.

One of the needs most often identified by NEP educators was a better understanding of the nutrition-body-connection focusing on how substance use impacts the body and how nutrition benefits SUD recovery. They mentioned being asked often how learning about nutrition would help their clients and often felt unable to answer. One NEP educator shared:

He (the director) said it's fine if you don't focus on it (addiction) because they focus on it pretty much all day every day. So, I go in there not focusing on it, but I would like to have the information and to feel confident enough to be like 'this is very relevant to your recovery.'

NEP educators recognized the scope of their work and did not want to overstep their boundaries regarding the information they shared about health issues with their clients. For example, another NEP educator said:

And we don't have the materials, because we are not dietitians, to say when you use the substance it causes dis-nutrition and this damage to these organs or you're not getting these nutrients because it's not binding, not that I would go in that much detail.

Several educators mentioned that it would be beneficial to have this information for their clients and as background information for NEP educators working with this audience for the first time.

A related topic identified during the focus groups concerned the health issues experienced by clients in SUD recovery. NEP educators reported that clients were aware of damage to their bodies and were focused on regaining their health. Providing a balance of content that was informative but did not lead to questions regarding diagnosis and treatment would be beneficial. As one participant shared, “But they want to know ways of how they can maybe go through their detox and maybe get healthy faster, and sometimes I just try to get back to the fruits and vegetables.”

Although substance use can impact many body systems, the one most mentioned in the focus groups was the digestive system. Although digestive issues may result from several different conditions, according to the NEP educators, recovery clients perceived stomach issues as a common side effect of SUD and treatment. Some clients even mentioned developing lactose intolerance and irritable bowel syndrome issues. As was noted by one NEP educator:

With me, they ask a lot about the colon and about issues they have because they have a lot of stomach issues, so they are wondering how they can prevent these stomach issues. That’s where we talk about fiber and how we should eat and why we should eat so much. But they have a lot of stomach issues.

NEP educators were also asked about what materials would be helpful when working with SUD recovery clientele. NEP educators frequently cited an increased need to incorporate interactive and engaging education materials with SUD treatment center clients. One NEP educator noted, “We need more things to interact with them because they’re not going to sit there and listen to me.”

As a solution, educational games were suggested to provide a fun alternative to lessons. An example of this request:

I would love to have more adult nutrition games because my group is anywhere from 20-60 [years old]. The older ones, you know, you can talk, and it seems they’re more interested. But the twenty-year-olds, you just kind of, I lose them sometimes.

NEP educators also noted a need for marketing materials to provide directors and administrators at SUD treatment centers and other facilities because some did not realize the benefit of nutrition education for their residents and clients, as reflected in this quote:

Could there be some type of material where it shows? ‘Cause I know they’re starting to do a lot of research on it now of nutrition and the success of addiction recovery, that could be given to whoever’s over the program at the jail so they see the outcomes better

or to give to those programs. To whoever's over the program to say, 'this is why we should be doing this.'

In addition to specific topics and considerations identified by NEP educators for a new or adapted curriculum, guidance was also provided on how to deliver lesson content and engage with an audience with which NEP educators may not currently work.

Theme 4: Guidance to Educators New to Substance Use Recovery Audience

Within this theme, two subthemes emerged that would be beneficial for NEP educators who have no experience working with SUD recovery clients and within the SUD treatment setting. These included (1) suggested strategies and (2) advice.

Several NEP educators suggested a successful strategy for garnering buy-in and support from the SUD recovery audience was being honest, open, and willing to share their own personal experiences throughout the classes. One NEP educator explained:

I think the more you talk about yourself and your family or whatever and finding that common denominator, that may not be the drugs or the alcohol. But you know family, children, and pets anything of that nature then they really start opening up more and more to you.

Rather than focusing on substance use, NEP educators focused on bringing attention and focus back to the human elements of the participants. This helps make the SUD recovery participants feel like they are welcome and can be honest. Another strategy is to carefully and intentionally craft messaging to encourage healthy behavior change. It was mentioned that SUD recovery clients are already experiencing deprivation or feel like they have little control. Instead, educators are encouraged to approach nutrition information with patience and consideration. One NEP educator shared, "I always say 'I will never tell you to stop drinking soft drinks all together. I may tell you to cut back one a day if you're drinking 9 per day.'"

NEP educators offered several pieces of advice for future nutrition educators who may be hesitant or reluctant to work with SUD recovery clients. One NEP educator noted, "You'll go out and you may be scared. You may be apprehensive. You may feel uncomfortable but try it. I think it's one of the best groups I've got."

Others offered advice to future NEP educators working in the SUD treatment setting to demonstrate empathy and compassion. One NEP educator shared, "Don't go in like you know everything that they need to hear because unless you've walked that walk, you don't know what they need to hear."

Other NEP educators noted, "everyone deserves a second chance," and "under different circumstances, that could be me." Finally, one NEP educator suggested more education may be

needed within Cooperative Extension to assure acceptance of the SUD recovery population which is often marginalized and stigmatized. They stated:

So, I think we have to educate everybody in Extension on what we're doing and the people we are working with, and that they have questions and want more information about Extension. Everybody's going to have to have a more open mind.

Discussion

The application of nutrition education in the SUD recovery setting has not been sufficiently studied to determine which aspects of nutrition education may be linked to improved long-term outcomes (Jeynes & Gibson, 2017; Wiss et al., 2019). The goal of this project was to inform the development or adaptation of a nutrition education curriculum to better meet the needs of individuals receiving education within SUD treatment centers and similar settings. The findings of this study highlight the current experiences of NEP educators working with SUD recovery clients and provide useful data with the potential to inform future nutrition interventions and programs. Drawing on their experiences teaching the audience and delivering education in SUD treatment settings, the educators indicated that a SUD recovery-focused nutrition education curriculum and the program should consider and fit the context of SUD treatment settings. Specifically, the educators' experiences indicate five contextual factors that should be considered in the development and delivery of a recovery-focused nutrition education curriculum.

First, NEP educators mentioned that the type of facility and classroom setting where the curriculum is delivered might impact how nutrition materials are delivered to SUD recovery clients. For example, certain rules and standards in a correctional facility versus a SUD treatment center may influence implementation. This could include scheduling variation and limited access to certain resources for food demonstrations, including lack of permission to use knives in some SUD treatment settings. Second, the demographic compositions of clients within various settings, including gender composition makeup of clients (e.g., men, women, pregnant women), may influence how NEP educators approach the audience. Third, the behavioral characteristics observed in the SUD recovery audience, such as short attention span and addiction replacement (e.g., propensity to shift to sugar-laden products), may also impact how the educational program is administered. Fourth, NEP educators reported that SUD recovery clients' food environment or food access might be influenced by their geographic location (e.g., rural versus urban). Finally, NEP educators noted that partnerships with Extension Specialists and Agents and resources such as videos and educational games might aid NEP implementation in the SUD treatment setting. Information regarding these factors should be collected prior to implementation, if possible, to enhance the successful delivery of the nutrition education program or intervention.

NEP educators identified several aspects of the existing adult nutrition education curriculum that were considered effective and appropriate to convey nutrition education concepts to this population. The educators suggested that a recovery-focused nutrition education program should

retain the core elements and lessons of a typical evidence-based adult nutrition education curriculum, including diet quality, cooking skills, food safety, and budgeting. Not only did the educators think these lessons should be included but indicated that this population needed this instruction more than typical audiences participating in *Healthy Choices for Every Body* (HCEB), the primary adult nutrition education program used by SNAP-Ed or EFNEP programs in Kentucky. These key lessons should be accompanied by icebreakers, reinforcements, and other activities that increase engagement for participants.

These findings align with literature on this topic, as nutrition interventions in the SUD treatment setting are found to be especially successful when they incorporate life skills lesson topics like food safety, cooking, and financial resource management. These are considered valuable lessons in SUD treatment (Neale et al., 2012). In line with the findings of this study, it is apparent that engaging SUD recovery clients in active learning and sharing food preparation knowledge and skills can enhance nutrition education facilitation throughout SUD treatment (Cowan & Devine, 2008). Furthermore, similar to our results, research demonstrates that engaging clients in cooking lessons may be an effective way for nutrition educators to teach healthy meal ideas and cooking skills to SUD recovery clients (Chavez & Rigg, 2020; Cowan & Devine, 2008). These skills are critical for clients in SUD recovery to be able to function independently after treatment, make healthy food choices to achieve greater health, and better support their family after achieving SUD recovery status (Chavez & Rigg, 2020; Cowan & Devine, 2008). Limited research indicates that providing tailored nutrition education and establishing a well-balanced dietary intake during SUD treatment can reduce substance use relapse (Chandler et al., 2018; Jeynes & Gibson, 2017).

In addition to retaining the core elements of an evidence-based nutrition education curriculum, the educators mentioned that a SUD recovery nutrition education curriculum should include content and lessons that address the nutrition-body-connection and specific health issues related to SUD recovery. These newly identified concepts would better align nutrition education with the questions, concerns, and realities that individuals in SUD recovery face and would allow NEP educators to provide a more tailored intervention to meet clientele needs. For example, it is well-documented that SUD is associated with gastrointestinal distress, which has major implications on food choices and eating behaviors (Kaiser et al., 2008; Neale et al., 2012; Wiss, 2019) and was cited by NEP educators as an important topic for future programming. Not only is additional content connecting nutrition to healing and recovery necessary to share with clientele, management of treatment facilities, and similar community partners, but additional information is needed to ensure NEP educators themselves can be better prepared to address this population and answer relevant questions that may arise during programming. The curriculum should provide reference material for educators and incorporate training to address client questions in the SUD recovery setting properly. This study provides insight into new approaches and strategies that can be incorporated into future programming to address the unique nutrition-related challenges of the SUD recovery population.

Implications for Extension

New and existing nutrition education programs may benefit from the findings of our focus group sessions. As mentioned previously, HCEB is the primary adult nutrition education program used by Kentucky SNAP-Ed and EFNEP educators. It includes ten core lessons, with seven required for program completion. This program has been highly effective at improving nutrition education, food resource management skills, and food safety practices within limited resource audiences (Adedokun et al., 2018) but has not been evaluated within the SUD population in recovery. Since the time of data collection, the University of Kentucky NEP, in collaboration with Registered Dietitians, has used these findings to inform and adapt the existing HCEB program to better meet clients' needs in recovery. Table 1 identifies the adaptations made and provides specific examples of how the existing curriculum was modified to better meet the needs of the audience. Addressing the unique nutritional needs of those in SUD recovery provides an opportunity for NEP educators to collaborate with Registered Dietitians in developing appropriate nutrition education materials. Future studies will examine the effectiveness and impact of this newly developed program within the SUD treatment setting.

Table 1. Adaptations to Adult Nutrition Curriculum Healthy Choices for Every Body

| Adaptation | Example(s) |
|---|---|
| Inclusion of more information related to the specific health and nutrition needs of those in recovery | <ul style="list-style-type: none"> • Including detailed information regarding nutrition and SUD within trainings for educators to provide foundational knowledge • Nutrition-related recommendations within lessons have been revised to consider the commonly cited concerns of clientele (e.g., focusing on adding fiber to the diet to potentially help with digestive issues) |
| Emphasis on the nutrition-body-connection | <ul style="list-style-type: none"> • Revised curriculum title • Newly developed lesson focusing on the benefits of nutrition during recovery offered as a core lesson within the HCEB curriculum |
| Address common client questions | <ul style="list-style-type: none"> • List of frequently asked questions by clientele and appropriate responses provided to educators |
| Additional activities and engagement opportunities | <ul style="list-style-type: none"> • At least one icebreaker or game built into each lesson • Movement breaks (1-2 minutes) included within lesson outlines • Relevant discussion questions were provided to stimulate engagement with clients |
| Newly developed supplemental resources | <ul style="list-style-type: none"> • Reference materials that provide background information for NEP educators related to nutrition and SUD • List of frequently asked questions by clientele and appropriate responses provided to educators |

This study also identifies factors that should be considered prior to implementation with this population or within SUD treatment settings. For example, recipes included within new or adapted programs may avoid using cooking tools that can be considered weapons. Educators may want to prepare parts of recipes ahead of time or show video demonstrations to teach knife skills. This method will ensure that NEP educators feel confident and comfortable working within a new setting.

Further, findings from this study may be insightful for the dissemination of new programmatic materials to nutrition educators through trainings, webinars, and workshops. This study should be of interest to nutrition educators since educators strive to implement more tailored interventions and programs to meet the nutrition needs of their clients to improve nutritional status, physical health status, mental well-being, and, specifically with this population, recovery outcomes through effective SUD treatment.

Strengths and Limitations

It is important to note the limitations and strengths of this study. To strengthen our findings, we obtained a variety of perspectives from NEP educators working with clients in recovery within both residential and nonresidential facilities. Further, our methodology was theoretically sound with a high degree of thematic agreement (Boeije, 2002; Creswell, 2013). As with many qualitative studies, our focus group participant sample size was small and limited to the experiences of NEP educators in Kentucky, thereby limiting generalizability and diversity. In addition, NEP educators may have been at varying points of program implementation with this population or have varied experience working within this setting; however, the purpose was to gather experiences and perspectives about working with clients in SUD treatment in a variety of settings. Different responses and conclusions may be found with a larger sample size. Therefore, additional research examining NEP educators' perspectives regarding nutrition education within this population is necessary to understand how to best serve this population fully.

Conclusion

The value of nutrition education in substance use treatment is an emerging research topic that is not fully understood. Therefore, these research findings can provide the academic and professional community with a better understanding of nutrition education components targeting clients in recovery. Gaining insight into how to effectively administer nutrition education programs in the SUD treatment setting can lead to the development of more effective nutrition education interventions to improve SUD recovery outcomes for clientele. With increased knowledge on this emerging research topic, the University of Kentucky Nutrition Education Program will directly benefit Kentucky residents who suffer from substance abuse and experience detrimental social, physical, and health implications.

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