J-TICH Open Access Publication

Journal of Trauma-Informed Community Health, Nutrition, and Physical Activity

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Community-Driven Publishing Leads to Community-Oriented Solutions

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Community-Driven Publishing Leads to Community-Oriented Solutions

Publishing is a hallmark activity in academia, where professional scientists strive to share their research findings in high-impact journals. However, this practice doesn't always align with the realities of non-academia, community-focused projects. In these contexts, project leaders are frequently immersed in addressing pressing challenges and may not have the resources available or see the immediate benefits of publishing their work. When a community-based project demonstrates promising results, the typical response is to integrate these findings into existing practices and shift focus to the next urgent issue. The cycle of addressing immediate needs often means that the valuable insights and successes achieved through these projects remain underreported and underutilized in the broader discourse. Despite this, publishing community-focused work is crucial as it validates the efforts of those on the ground, contributes to a wider knowledge base, and has the potential to influence policy and practice on a larger scale. By documenting and sharing their results, community-based projects can gain recognition, attract support, and provide models for replication, ultimately enhancing the impact and sustainability of their efforts.

In my previous roles as a registered nurse and healthcare administrator, where I managed educational programming for a small rural hospital, I frequently experienced a profound sense of fulfillment and satisfaction when engaging in community-based projects, particularly when they involved projects tailored to meet the specific needs of my community. I must be honest—while some projects achieved remarkable success, many fell short of our goals. However, more often than not, these endeavors provided us with valuable insights into what *didn't* work rather than what *did*. These lessons, though challenging, were crucial in guiding our future efforts, whether it meant refining our approach or pivoting to new strategies to address the need. Despite our

commitment and the invaluable lessons learned, our impact was often confined to the organization or community itself. Limited time and resources constrained our ability to share these findings more broadly or to influence practices beyond our immediate environment. Consequently, we would transition immediately to the next issue, often leaving valuable insights unshared.

Publishing community-level work is essential for several reasons, primarily because it amplifies local efforts and insights by enhancing visibility, validation, and impact. This dissemination can attract recognition and attention from policymakers, funders, and other stakeholders, which is crucial for sustaining and scaling project initiatives (Ivey & Borchardt, 2024). Moreover, sharing community-level work supports informed decision-making for community-based organizations (CBOs) by providing access to valuable data from similar initiatives (Yoon & Copeland, 2020). It facilitates knowledge sharing and the development of networks among organizations engaged in similar work. By leveraging the latest scientific research, CBOs can design and implement evidence-based programs and interventions with a higher likelihood of achieving desired outcomes. Beyond this, publishing such work also fosters knowledge sharing across different populations, communities, and regions. It facilitates replication and scaling by offering models for similar initiatives elsewhere. Furthermore, it enhances the credibility and reputation of the organizations and individuals involved, while empowering communities through acknowledgment of their contributions and providing a platform to share their stories.

In the 1990s, the open-access movement emerged, revolutionizing the dissemination of academic knowledge by making online-only, freely accessible journals available to the public. This shift towards online publishing rapidly became the standard, and by the early 2000s, a

coordinated effort was underway to broaden access to scholarly journal articles that had previously been restricted. This movement broke down long-standing barriers, enabling the widespread availability of cutting-edge, evidence-based practices (Laakso et al., 2011). By making research freely accessible, open access ensures that valuable information reaches those who need it most—the people working directly in communities and on the frontlines to solve challenges and overcome barriers. This democratization of knowledge not only accelerated the application of innovative practices but also empowered communities and CBOs to share their stories, whether of successes or failures, in the hopes that generalizable knowledge could be attained.

In closing, while the immediate demands of community-level work often overshadow the potential benefits of publishing, it is crucial to recognize the transformative power of dissemination. By sharing insights and results from community-based work, we not only validate the efforts of those on the ground but also contribute to a broader, evidence-based knowledge base that can drive policy and process improvements. The open-access movement has further amplified this impact by making research widely available, ensuring that project leaders and decision-makers can benefit from the latest evidence from a variety of settings, populations, and organizations. Embracing the practice of publishing and disseminating community-level work not only enhances the visibility and credibility of these initiatives but also fosters a culture of shared learning and collaboration. This, in turn, can lead to more effective and sustainable solutions to current and future community challenges, ultimately strengthening the bridge between research and real-world application.

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The Value of *J-TICH* for CalFresh Healthy Living

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The Value of *J-TICH* for CalFresh Healthy Living

As I write this, CalFresh Healthy Living (CFHL) is approaching the end of its fiscal year, which means I—and several other CFHL employees—are finishing our annual reporting, including writing Success Stories to share programming highlights from each county. Some stories are easy to write because they have a clear beginning, middle, and end within this fiscal year. Other stories, however, are harder to tell within the context of the fiscal year reporting cycle. For instance, we started a program and had some anecdotal success. However, the program will wrap up as one fiscal year turns into another, and we won't have final survey data or program reach until the beginning of next year. This causes a dilemma: should I write a Success Story this year without having all the results or wait until next year, when we can only briefly reference the work done in the previous fiscal year? The CFHL reporting system is built to share work done in each fiscal year, and there are benefits to that. However, it can also limit our ability to tell the whole story. We can give context to the parts of the story happening outside the current fiscal year, but we cannot provide all the program details from start to finish.

The *Journal for Trauma-Informed Community Health, Nutrition, and Physical Activity* (*J-TICH*) offers an opportunity to document programming that spans multiple fiscal years in one story, sharing details from start to finish. This opportunity has benefits for CFHL staff as writers and as readers. While reading Success Stories documenting projects that span multiple years but only focus on one, readers might have questions and want more information. That information may be challenging to find. *J-TICH* offers a platform that CFHL readers can access for detailed stories uninterrupted by the end of a fiscal year, complete with references and resources.

J-TICH also benefits CFHL employees by showcasing articles highlighting trauma-informed methods. With "Advancing Equity" as a CFHL Programmatic Priority, CFHL staff can

learn about other agencies' trauma-informed programming. Submitting articles to *J-TICH* detailing how implementing agencies consider equity in their program planning and enact it throughout implementation allows readers to see what equity looks like in action within the context of CFHL nutrition and physical activity programming. We can learn how other agencies consider equity not just in the programming itself but in their assessment design and distribution, their presentations to decision-makers, and their sustainability plans. We can consider how their programs may or may not reflect our own and how we can adapt their methods to benefit our communities.

As an open-access journal, *J-TICH* allows CFHL staff to showcase their work beyond a CFHL audience. We can become published authors who grow the field of trauma-informed nutrition security, expanding program awareness to potentially attract more diverse partnerships. CFHL implementing agencies can educate and inform, and *J-TICH* provides an opportunity to share our work with political representatives, key decision-makers, and other interested parties. While many of us prepare one-pagers to highlight overall program successes, this journal will give another format to highlight a detailed example of our work and its positive impact. It also presents an opportunity to note current challenges or resources that could increase our effectiveness, helping recruit valuable partners.

While contributing to *J-TICH* will take time, the work doesn't have to be done all at once, and because it's not limited to a fiscal year schedule, the writing timeline becomes more manageable. Since we're submitting stories that take place over a year or more, we can work with the intention of sharing our programming in this way—taking notes, journaling, or even drafting sections along the way. *J-TICH* provides online templates to make the writing process

more straightforward and one-on-one author meetings so we can get feedback throughout the drafting process.

I hope implementing agencies across the state will consider documenting their program's successes in this new way so that others in the field can learn more about the work and use it to benefit their programs and participants. By sharing our insights, we can continue strengthening our efforts to increase trauma-informed nutrition and physical activity programming in California and beyond.

An Outcome Evaluation of a Medically Tailored Meal Intervention for Older Adults with Diabetes

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Abstract

Background: Due to social conditions, older adults in Solano County have been affected by high rates of chronic conditions such as type 2 diabetes (T2D) and have found it challenging to manage their conditions effectively. The Medically Tailored Meal (MTM) intervention was developed to evaluate whether a nutrition-focused intervention would help to control diabetes.

Method: The intervention involved 50 older adults living in Solano County. To improve T2D control in this population, participants received 12 weeks of 10 prepared meals, a weekly grocery bag, health education, and exercise classes.

Results: Data were collected using pre- and post-surveys, an intervention satisfaction survey, and recorded health data. Almost all participants reported improved blood sugar and glucose levels, among other health factors.

Discussion: These findings underscore the potential of the MTM interventions to improve the health outcomes of older adults with T2D and the need for further implementation and support for other social health conditions.

Keywords: Older Adults, Medically Tailored Meals, Food as Medicine, Diabetes Prevention, Trauma-informed Nutrition Education.

An Outcome Evaluation of a Medically Tailored Meal Intervention for Older Adults with Diabetes

In Solano County, the top three leading causes of death are cancer, heart disease, and stroke, with diabetes being sixth (Solano Public Health, 2006). Older adults with chronic conditions have been historically marginalized. Solano County conducted a needs assessment, and the community identified nutrition as an area for improvement, which included expanding culturally appropriate meals, offering more food resources such as emergency meals and snacks, and increasing the number of congregate and home-delivery meals (Solano County, 2020).

Medically Tailored Meals (MTM) are nutrition-focused meals approved by Registered Dietitians, designed to support individuals in achieving their health goals, especially during critical recovery periods (Roots Food Group, n.d.). These meals are part of community support initiatives to manage chronic conditions, particularly for those recently discharged from hospitals or nursing facilities. MTM interventions coordinate care and help reduce healthcare costs associated with chronic illness management. The Ecosystem of Care model enhances this approach by integrating multiple networks to tackle the root causes of poor health among individuals with unique health and social needs, fostering a sustainable food ecosystem for individuals and communities (Camden Coalition, n.d.).

In Solano County, thirteen percent (13.7%) of the population experience food insecurity (Solano County, 2020). Addressing these barriers can further support the community's efforts in preventing and managing chronic illness (Solano County, 2020). Numerous studies have shown that MTM interventions effectively improve health outcomes in managing chronic conditions, including a 50% adherence to treatment, a 17% improvement in diabetes control, and a 23% higher likelihood of being discharged home after hospitalization (FIM Coalition, n.d.; Berkowitz

et al., 2018; Berkowitz et al., 2019; Berkowitz et al., 2019; Gurvey et al., 2013; Henstenburg et al., 2019; Seligman et al., 2018). A study found that a 1% reduction in HbA1c (glucose levels) led to a 2% decrease in total healthcare costs and a 13% decrease in diabetes-related expenses, resulting in annual savings of $429 and $736, respectively (Lage & Boyce, 2020). For patients with an HbA1c of 7% or higher, a 1% reduction correlated with a 1.7% reduction in all-cause costs and a 6.9% reduction in diabetes-related costs, with annual savings of $545 and $555 (Lage & Boyce, 2020). This community impact project evaluated an MTM intervention and demonstrated that food can be used holistically as medicine to manage chronic conditions.

Method

In 2023, Innovative Health Solutions (IHS) received American Rescue Plan Act funding from the Napa/Solano Area Agency on Aging (N/S AAA) to implement an MTM intervention in Solano County. The target population for intervention was older adults with Type 2 diabetes (T2D) in Solano County, who were La Clínica de la Raza-Vallejo patients. This intervention assessed health outcomes for adults 50 and older with T2D living in Solano County. Over 12 weeks, the MTM intervention provided services to 50 T2D patients, including 10 prepared meals, a weekly grocery bag, T2D education, and "Bingocize" classes to provide physical activity. The "Bingocize" exercise classes were conducted simultaneously with the diabetes classes and food pick-up. Bingocize is an evidence-based curriculum to help older adults improve and/or maintain mobility and independence, learn about fall reduction, improve nutrition and other health-related behaviors, and engage older adults in social settings.

La Clínica provided patient case management, facilitated weekly T2D education and support groups, and assisted during meal and food pick-up. La Clinica selected patients for the MTM program who had uncontrolled diabetes and were dealing with other chronic health issues,

mobility challenges, food insecurity, housing instability, limited English proficiency, and lack of connection to a primary care provider. These factors complicated their ability to manage diabetes effectively. The impact of the MTM intervention on these individuals was significant, highlighting the importance of the program.

In collaboration with Aliados Health Plan, IHS developed and coordinated the activities and partnerships to implement the program. Aliados Health provided IHS with in-kind staff and administrative support to guide a contractual agreement with La Clínica de La Raza Vallejo. La Clínica, a federally qualified health center, played an indispensable role in the program, providing accessible, culturally appropriate, and high-quality healthcare services to all individuals.

As part of planning and implementing the MTM intervention, we secured a contract with Partnership HealthPlan of California to provide MTM as part of their CalAIM Community Supports initiative. This contract ensures that MTM will be offered as an ongoing benefit to the community for Medi-Cal clients who need it. Collaborating with community partners is crucial to establishing a viable, fair, and sustainable Ecosystem of Care in Solano County. A functional Ecosystem of Care involves interconnected programs and services designed to holistically address community members' complex health and social needs. To ensure this, IHS contracted Provisions by League of Chefs in Vallejo to serve as the food vendor for the MTM program. Provisions was selected for its proximity to La Clínica in Vallejo, convenience, commitment to procuring local ingredients, and dedication to supporting local businesses, demonstrating our careful consideration of all aspects of the program. The role of community partners like Provisions is invaluable, and we sincerely appreciate their contribution to the success of the MTM program.

Another local organization, Food is Free Bay Area, was selected because of its willingness to accommodate patients' needs. This organization not only prepared the weekly grocery boxes and picked up the prepared meals from Provisions but also went the extra mile by delivering meals to the La Clínica site and participants' homes when they could not attend in-person groups.

Stakeholders for the MTM Intervention, who are also essential partners, included individuals and service providers already working with this population, such as medical providers, social workers, IHS staff, Aliados Health staff, La Clínica Vallejo staff, Solano Public Health staff, Senior and community centers, food providers and transporters, and others. However, it is crucial to note that older adults with chronic conditions are a vital stakeholder group since they are most impacted by the implementation, success, and modifications made to this program.

Participant behavioral and medical data was collected and analyzed to evaluate if the intervention achieved the expected outcome. This data was collected at the beginning and end of the intervention period. A process evaluation was conducted to make intervention design and delivery improvements. The intervention evaluation sought to answer the following three evaluation questions: Do participants of the Medically Tailored Meals Program show objective improvements in their health after participation in the program? Have participants in the Medically Tailored Meals intervention improved their food/nutrition practices after participating? Does MTM improve food security for those enrolled?

Outcome indicators used to assess participant's food behavior and health included the percent change in participant Hg A1C, blood glucose, blood pressure, and Body Mass Index (BMI) measurement pre- and post-intervention; the average change participants report in healthy

and unhealthy eating behaviors, and the average change participants report in the level of food insecurity. The change process was evaluated based on three indicators: the number of participants who referred to the intervention program who participated in the meal services, meals distributed to participants, and the percentage of participants who completed pre- and post-surveys.

The IHS program staff trained clinicians at La Clínica to identify individuals who meet the intervention criteria, are not currently receiving Meals on Wheels, and are interested in participating in an MTM program. Once the eligible individuals were screened, the La Clínica staff notified IHS of their eligibility, and the individuals were enrolled in the program. The IHS staff tracked participant attendance to ensure that designated meals were delivered to their homes or skipped for that week if attendees could not attend their appointments. After discovering that some participants had difficulties with transportation, a change was made to deliver meals to participants' homes and provide health education via phone calls.

This comprehensive approach to participant care was reinforced by monthly meetings to discuss the program's progress and make any necessary changes. Provisions (the food provider) and Food is Free implemented Food Safety Plans to ensure food was handled correctly and safely. The menus were approved by an Area Agency on Aging Registered Dietitian and meet California Code Title IIIC Menu requirements for essential nutrients. There were no cultural considerations for the focus population; meals were not culturally appropriate but focused more on being medically tailored.

Once La Clínica staff had identified interested participants, their team worked with the participants to complete the (PRE) survey before receiving any MTM intervention components. The La Clínica support team was on hand to support participants with survey completion,

ensuring that each participant felt personally supported throughout the process by welcoming them to the program, explaining the program, explaining the purpose of the survey, answering questions, and reading the survey to participants who could not read. The pre-and post-surveys included general assessment questions related to health outcomes, including two questions adapted from the gold standard USDA Adult 18-item Food Insecurity Survey (U.S. Department of Agriculture, Economic Research Service, n.d.) and general questions about physical activity and eating habits. The survey also included demographics, eligibility, general nutrition, physical activity, medical information, and administrative questions to ensure a holistic understanding of each participant. La Clínica delivered the completed surveys to the IHS team that entered the records into the Apricot 360 tracking system.

Approximately halfway through the program, the IHS internal evaluation team surveyed the La Clínica team members to assess how they felt the participants were managing their diabetes, discuss any challenges they were facing, and share anything participants wanted to learn more about during T2D and support group sessions. These surveys involved open-ended responses completed by La Clínica staff and were not part of the pre-and post-evaluation analysis.

At the end of the intervention, La Clínica staff completed a post-intervention survey with each participant. This post-survey included the same core components and questions as the pre-survey (general nutrition and physical activity, medical information, and administrative questions) and intervention satisfaction to evaluate changes.

Results

This intervention sought to determine if MTM intervention impacted health outcomes in T2D and improved their nutrition practices and food security. This research evaluated the

effectiveness of an intervention by examining both outcome and process indicators of success. The findings will inform future implementation cycles and assessments.

Quantitative data was gathered from matched pairs (pre- and post-tests) and analyzed using t-tests to identify significant differences. Additionally, qualitative data was thematically coded to identify patterns in participant feedback, allowing for a comparative summary of the responses.

Forty-nine individuals participated in at least one of the 12 classes, with 404 attendance records, and 73.5% of participants attended more than six sessions. Fifty-one participants completed a pre-survey, 34 completed a post-intervention survey, and 33 completed both. Of the individuals who completed the pre- and post-surveys (n=33), 54.5% identified gender as female, and 45.5% identified gender as male. 63.6% identified as Hispanic, 15.2% as Asian, 9.1% as Black or African American, 9.1% as White, and 3% as Native Hawaiian or Other Pacific Islander.

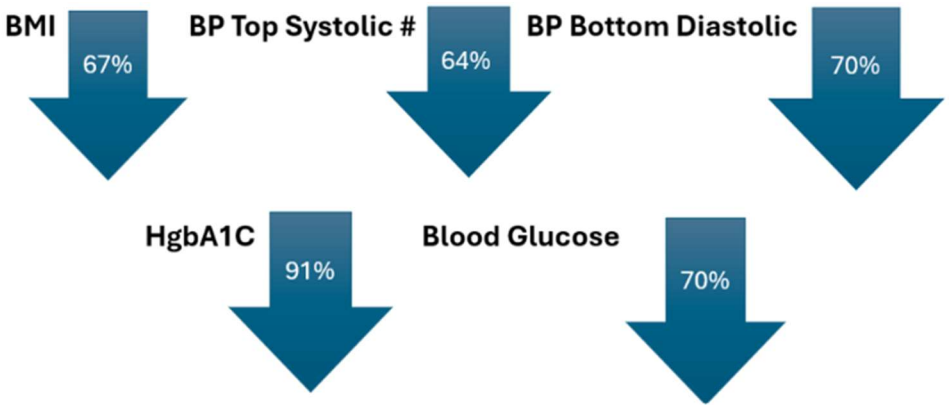
Clinical Health Measures

La Clínica staff recorded participants' health data at the intervention period's beginning and end. Key indicators all showed improvement (Figure 1), with HbA1C and blood glucose improvements being statistically significant (90.9% of participants had improved (lower) HgbA1C, and 69.7% had improved (lower) blood glucose measurements, Table 1). A similar percentage of participants had lower BMI and blood pressure values. At the end of the study, controlled versus uncontrolled T2D was tracked using HbA1C results. Before the intervention, 12% (4 out of 33 participants) had their T2D in control with an overall average HbA1C of 9.118. After participating in the MTM program, 33% (11 out of 33 participants) were in control with an

overall average HbA1C of 7.615. According to research, any reduction in HbA1C is associated with health benefits for patients and a decrease in healthcare costs (Lage & Boye, 2020).

Figure 1

Percentage of Change by Clinical Health Measures



Note. This figure shows the percentage (%) of participants who improved from pre- to post-intervention in five clinical health measures (BMI, BP systolic, BP diastolic, HgbA1c, and Blood Glucose) associated with diabetes status (controlled versus uncontrolled) and diabetes outcomes.

Table 1

Clinical Health Measures: Pre- and Post-Survey Averages

Questions	Pre-Average	Post-Average	Difference	P-Value	Percent with Improvement
BMI	29.35	28.85	-0.5	0.754	66.7%
BP Top Systolic# (mmHg)	133.12	125.15	-7.97	0.1021	63.6%
BP Bottom Diastolic# (mmHg)	75.67	70.19	53.70	0.0813	69.7%
HgbA1C (mmol/mol)	9.12	7.61	-1.5	0.0001	90.9%
Blood Glucose (mg/dl)	197.64	155.42	-34.97	0.0179	69.7%

Note. This survey shows Pre- and Post-survey averages, Differences, P-Values, and Percent with Improvement values for Clinical Health Measures (BMI, BP, HgbA1C, Blood Glucose) for participants of the MTM program.

Table 2 displays the changes in HbA1C and BMI by gender. HbA1C and BMI decreased for the controlled and uncontrolled values for T2D groups, on average, for both genders by the end of the MTM intervention. Males with controlled T2D showed a more considerable change compared to females with controlled diabetes. In contrast, females with uncontrolled T2D had a larger change than males with uncontrolled T2D. The group with the most significant change was males with controlled diabetes.

Table 2

Changes in HbA1C and BMI Pre- and Post-Intervention

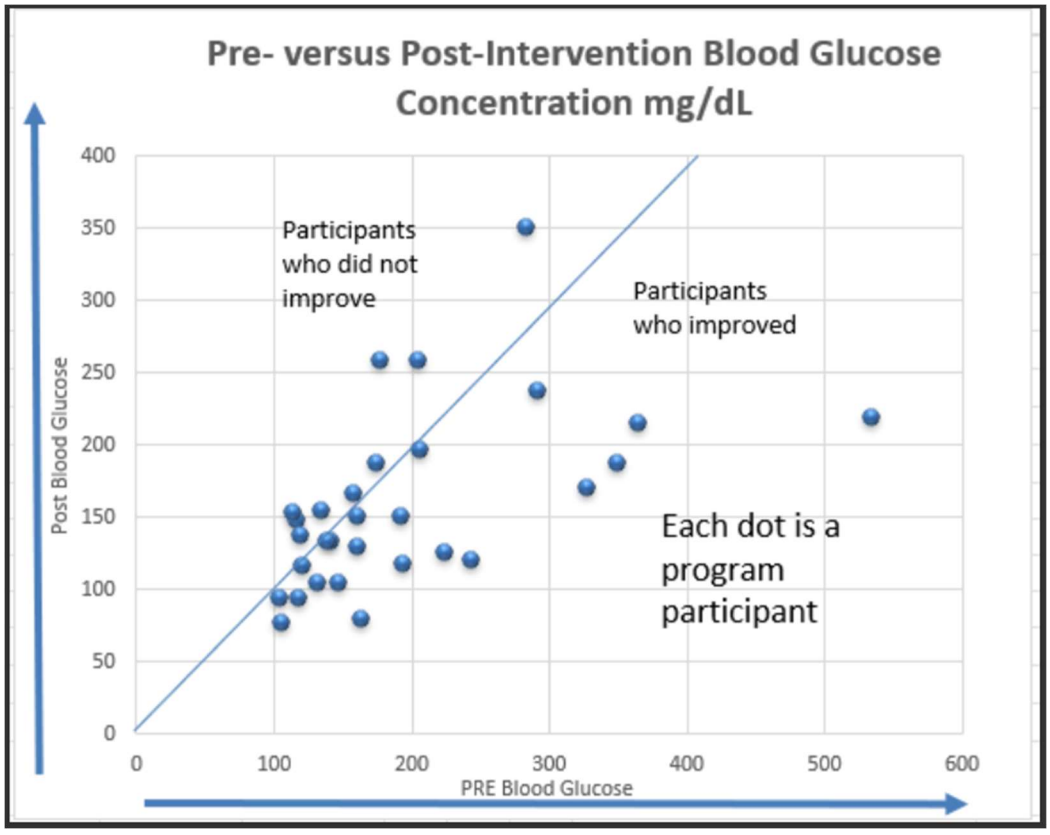
Diabetes Status by Gender	Average of Final HgbA1C (%)	Min. of Final HgbA1C (%)	Max. of Final HgbA1C (%)	Average of Change from pre- to post: HgbA1C (%)	Average of Final BMI	Min. of Final BMI	Max. of Final BMI	Average of Change from pre- to post: BMI
Controlled	6.21	5.20	6.80	-1.72	30.45	22.11	45.91	-1.06
Female	6.4	5.80	6.80	-1.10	33.03	26.30	45.91	-0.69
Male	5.98	5.20	6.50	-2.46	27.36	22.11	32.04	-1.50
Uncontrolled	8.32	6.60	13.20	-1.40	28.05	20.12	38.86	-0.22
Female	7.73	6.60	8.60	-1.46	27.82	20.12	38.86	-0.49
Male	9.03	7.10	13.20	-1.32	28.32	23.58	38.26	0.10
Total	7.62	5.20	13.20	-1.50	28.85	20.12	45.91	-0.50

Note. This table shows the Average, Minimum, and Maximum Final Values, and the average change from pre-post-intervention in HbA1C and BMI for MTM program participants.

The pre- and post-blood glucose values were included to compare against a constant line (Figure 2). The constant line indicates where the pre- and post-values would be identical. Data to the left of the line indicates actual individuals who did not improve, and data to the right indicates those who did improve. This visual shows more of the participants' detailed results. Each dot represents a participant in the program. Those to the left and above the line (9 participants or 30%) had higher blood glucose values in the post-assessment, whereas those to the right and below the line (21 participants or 70%) showed improved, lower values. Some participants improved more than others, with one participant improving significantly from the pre- to the post-survey, from approximately 540 mg/dL to approximately 240 mg/dL blood glucose concentration.

Figure 2

Pre and Post Intervention Blood Glucose Concentration



Note. This table shows the results from *the pre-and post-survey blood glucose concentrations for participants compared to those with no change (constant line).*

Eating, Nutrition, and Physical Activity Habits

Participants were asked to rate their eating habits pre- and post-intervention, with 1 being "poor" and 10 being "excellent." The average eating habits rating increased, which indicated that participants had an improvement in how they rated their eating habits. In addition to an overall statistically significant improvement, it is valuable to note that 76% of participants showed an improvement, so the intervention positively impacted most participants.

Physical Activity

Participants were asked about their overall physical activity level; 48% indicated an improvement in their activity level from pre- to post-MTM intervention.

Food Insecurity

Participants made modest improvements in their sense of food security. In the pre-survey approximately 30% of participants answered, "Sometimes True" or "Often True" to "In the last six months, I worried whether our food would run out before we got money to buy more." This number decreased in the post-survey. About 30% of participants whose food did not last and who did not have money to buy more also decreased from the pre- to the post-survey. In summary, participants had improvements in their perception of food security.

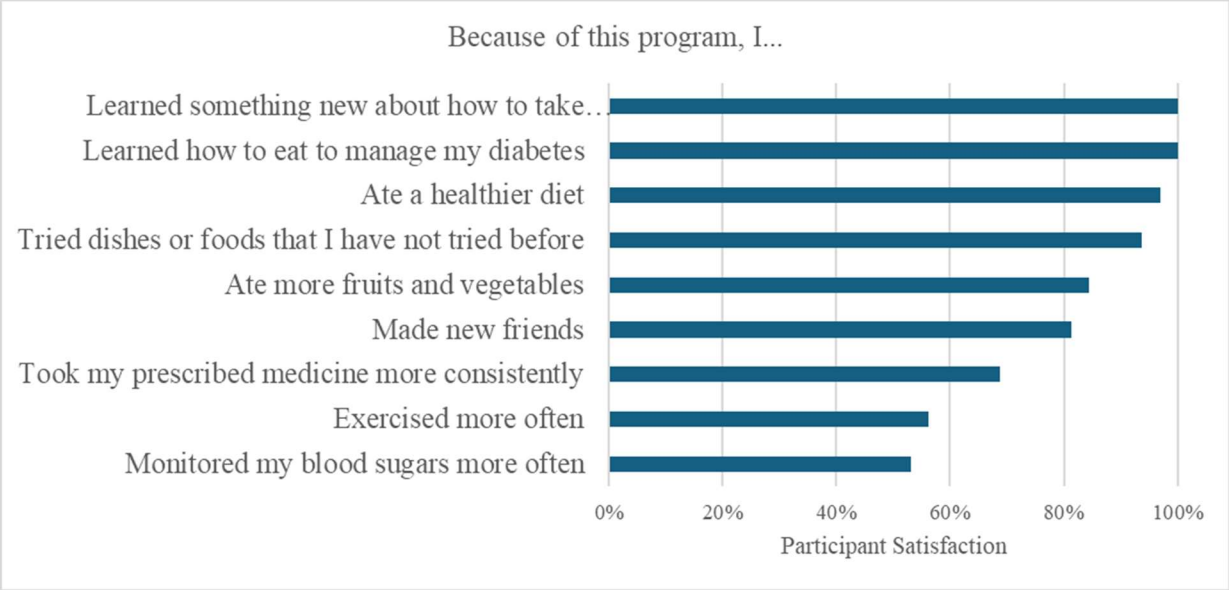
Participant Interim Survey and Final Participant Satisfaction

Participants were administered the interim assessment halfway through. They were asked how patients manage their diabetes, their challenges, changes made, and what they wanted to learn more about. Overall, participants were very satisfied with the program, with 100% of

respondents saying that because of it, they learned something new about managing their T2D and how to eat to manage it (Figure 3). Some individuals (12%) indicated they want more culturally relevant meals.

Figure 3

Count of Participants who had the Outcomes Specified



Note. This graph demonstrates the results of the participation satisfaction survey.

Discussion

Metabolic and diet-related illnesses are the leading risk factors for mortality in the U.S. Six in ten Americans have at least one chronic condition such as heart disease, cancer, stroke, or T2D (CDC, 2024). Additionally, four in ten adults have two or more chronic conditions (CDC, 2024). Although people with chronic illness represent 50% of the population, it contributes to more than 85% of healthcare costs (Holman, 2020). Chronic conditions are a concern nationally and on a community level. The need to effectively manage chronic conditions is critical for the health outcomes of older adults struggling to manage conditions. A healthy diet helps prevent chronic illnesses by providing essential nutrients that support bodily functions and boost the

immune system. A balanced diet rich in fruits, vegetables, whole grains, and lean proteins can help reduce the risk of heart disease, diabetes, and certain cancers (Cena & Calder, 2020). Additionally, avoiding processed foods and limiting sugar and salt intake are vital strategies for maintaining overall health and managing existing conditions.

Chronic conditions disproportionately affect people who have less access to resources to prevent and manage those conditions. Access to food can reduce barriers to healthy eating, improve patient outcomes, and assist the overly burdened medical system with solutions for chronic condition management while saving healthcare spending. Knowing that social determinants of health contribute to 80% of health outcomes, providing support within the built environment is critical in preventing and managing those conditions (Robert et al. Foundation, 2019). Studies have found that food security status strongly predicts chronic illness (Cai & Bidulescu, 2023; Gregory & Coleman-Jensen, 2017; Robert et al., 2019). Improving food security is critical in managing diet-related illnesses (Food Research & Action Center, n.d.; Ziso et al., 2022). Our holistic study aimed to contribute to food security and use food as medicine to manage chronic conditions through MTM intervention.

The MTM intervention had very favorable results, with almost half (48%) of participants showing an improvement in their activity levels and more than three-fourths (76%) of participants reporting improvement in how they rated their eating habits. Almost all participants (91%) had decreased HbA1C (average blood sugar and glucose level over the past two to three months), and 70% had lower blood glucose measurements. A similar percentage of participants had lower BMI and blood pressure. Participants also demonstrated a slight improvement in their perception of food security. The results of this study were consistent with other MTM programs in terms of improved blood glucose levels in adults (Lage & Boye, 2020; Seligman et al., 2015;

Seligman et al., 2018). This study built upon prior research on MTM programs focused on all adults to see if the findings would be replicated in older adults with T2D in Solano County. The findings suggest that medically tailored meals, increased access to fruit and vegetables, health education, and physical exercise can improve T2D control in this population. Eating the right foods, controlling portions, and exercising regularly can reduce blood glucose levels and improve health outcomes through direct services.

When services are provided to the community by the community, there is a greater chance of adherence (Haldane et al., 2019). Community involvement increases adherence because people feel more responsibility and accountability to their peers (Haldane et al., 2019). Additionally, services tailored to the specific needs and values of the community are more likely to be accepted and utilized (Granicus, n.d.; Haldane et al., 2019). This collective effort fosters trust and cooperation among community members (Haldane et al., 2019). Cultural relevance is crucial in ensuring that community services are effective and well-received (National Association of Social Workers, n.d.). When services are designed with an understanding of the community's cultural norms and values, they are more likely to resonate with the people they aim to serve (Penn State Extension, n.d.). This alignment with cultural expectations can lead to higher engagement and better outcomes (Administration for Children and Families, 2023).

As previously stated, holistic community-led approaches to chronic condition management, especially diabetes, can contribute to lowered health costs for the individual and system. This form of care constables decreases medical costs while providing critical care for disease management. For Solano County older adults with diabetes, being able to manage their health condition with any extra pocket cost is crucial for intervention adherence. Therefore, effective ways to manage chronic conditions are needed. The annual cost of T2D care was 413

billion dollars in 2022, making it one of the most expensive chronic diseases. (Centers for Disease Control and Prevention., n.d.; Food Research & Action Center, n.d.). Since 2022, about $307 billion has been spent yearly on the direct medical costs associated with the disease (American T2DAssociation, 2023; Parker et al., 2022). This is a costly burden for both the healthcare system and the individual. Uncontrolled T2D can contribute to a large portion, 48 to 64%, of the medical costs due to complications such as heart disease and stroke (King et al.,1999). For those with T2D and less access to health insurance, substantial financial difficulties may arise due to paying out of pocket for treatment.

We discovered that carrying the grocery boxes and food was challenging for this intervention. Delivering food to participants' places of residence is best for MTM interventions, where possible. Scheduling challenges made it difficult for some participants to attend classes and receive the food. It is recommended to be clear about this requirement initially with participants to ensure a smooth enrollment and implementation process. When we offered alternate options for implementation, it helped to increase participation, suggesting that flexibility, when possible, may produce higher adherence.

Furthermore, staffing was challenging during the program. Sometimes, staff had illnesses or were overwhelmed with other tasks and ongoing programming at the clinic. It is recommended that one person be dedicated not only to being a point person for the intervention but also to dedicate one to two backup persons if the point person is unavailable.

Additionally, we found that the coordination of food requires careful consideration. The menu must be appropriate to the medical status of the individuals and meet California Code standards. Sometimes, food vendors need to become more familiar with specific T2D requirements or how to meet them and need to realize the work involved when initially

becoming involved. Educating potential food vendors where necessary and working collaboratively on medically tailored menus is essential.

Ensuring the food menu is culturally appropriate for the participants is also recommended. Many participants were accustomed to eating Mexican cuisine and noted that the menu was new, which they only sometimes liked. According to the participant satisfaction survey, 12% of participants indicated that they would have preferred culturally appropriate meals. A consistent menu with culturally appropriate foods could greatly influence the participation and results of the study.

It is also essential to foresee the languages spoken by potential participants and plan for this in advance. Splitting participants into two separate groups, English and Spanish-speaking, greatly improved the feasibility and effectiveness of the classes.

For future programs, it is recommended that an increased emphasis be placed on connecting individuals to ongoing food programs, such as CalFresh and Food Pantries, after participating in the intervention so that they can continue improving their health by participating in an MTM intervention. Generally, it is recommended that MTM be considered for adults with chronic illnesses, such as diabetes, especially in the setting of existing wrap-around services, such as support groups, regular check-ups, or similar repeating touch points in their managed care. Effective partnerships across multiple sectors are critical to these efforts.

Conclusion

The implementation of the MTM intervention resulted in positive improvements at both the individual and community levels. At the individual level, the findings indicated a promising outcome, with participants reporting increased physical activity levels and healthier eating habits. Most participants significantly reduced their HgbA1C levels and experienced

improvement in their perception of food security. Additionally, participants had a positive experience during the intervention, learned new things about managing their diabetes, made new friends, and expressed eagerness to maintain engagement with their primary care provider. Participants requested that the weekly T2D education and support groups continue. La Clinica has implemented this continuation and now offers ongoing support groups.

At the community level, the intervention fostered valuable community partnerships and established a strong foundation for future collaborative efforts. This collaboration has strengthened connections with participants and streamlined recruitment processes. Moreover, IHS gained vital insights into the health needs of participants with diabetes, allowing for the development of future targeted interventions.

Reflection

This project takes a trauma-informed approach because it acknowledges that a community-based participatory intervention is needed to change behaviors in a community. This includes bringing together various community partners and stakeholders to work towards a solution. The MTM interventions focused on creating community-based solutions for a social issue. IHS used coordinated efforts of multiple community-focused organizations to assist in facilitating services and providing an intervention tailored to the needs of the focus community. Using La Clínica as an implementing agency was critical for participation; it was selected based on its connection with the local community. IHS adopted a person-centered approach, ensuring that participants' needs were recognized and addressed. La Clínica gathered feedback from participants throughout the intervention, providing valuable insights that enabled IHS to adjust effectively to the community needs. IHS provided quality control surveys to La Clínica to assess how the participants adapted to the intervention. In addition, La Clínica was flexible with the

participants; for example, when a participant could not make it to the in-person health education class, they offered a phone option to avoid missing any valuable information, and selecting La Clínica to implement the intervention allowed for more adherence. This demonstrates the commitment by both organizations to provide a high-quality intervention.

The MTM intervention has the potential to significantly increase health equity in three ways: food delivery, scheduling of health education classes, and the promotion of culturally appropriate meals. Developing a food box and meal transportation system makes it easier for all to access their meals, thereby improving health equity. This approach also alleviates the burden of carrying heavy food boxes for older adults. Offering health education classes in person, by telephone, and online makes the intervention more equitable and potentially increases participation and retention. Lastly, by adapting the menu to reflect culturally appropriate meals, we can further improve equity. This adaption would help the population understand how their culture's food can be healthy and allow them to feel more familiar with the foods provided. The MTM intervention is a beacon of hope, demonstrating that health outcomes can be significantly improved when communities work together.

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Asset Framing and Ethical Storytelling as Tools to Empower Communities and Reduce Stigma: An Examination of Virginia SNAP-Ed Reporting Practices

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Abstract

Background: Federally funded nutrition education programs, such as the Supplemental Nutrition Assistance Program-Education (SNAP-Ed), produce annual reports on program impacts and outcomes. Some reports have traditionally used a "deficit frame," which potentially stigmatizes participants. On the other hand, asset framing and ethical storytelling practices can empower communities and partners and reduce stigma. The purpose of this project was to determine how the language used in the 2022 Virginia SNAP-Ed annual report for the United States Department of Agriculture (USDA) aligns with ethical storytelling and asset-framing practices. In addition, the purpose was to outline strategies for more empowering reporting practices that rely on asset framing and ethical storytelling practices instead of a deficit frame.

Method: Content coding was used to identify instances of asset- and deficit-based framing. Codes were developed from a toolkit on asset framing and ethical storytelling. The annual report was coded by one researcher and reviewed by a second.

Results: Instances of deficit- and asset-framing and ethical storytelling were low. Only seven instances of stigmatizing language were identified. One was "low-income families," and the other six were instances where "SNAP-eligible" was used to describe a group of people. Both are examples of presenting challenges as personal characteristics. The majority of the language was neutral and did not stigmatize or empower program participants.

Conclusions: Overall, the report did not frequently utilize deficit framing. However, asset-framing practices were also not explicitly used. The authors propose multiple strategies to develop more empowering reporting practices, including implementing an asset frame to emphasize participants' contributions and strengths and employing ethical storytelling practices to center community voices.

Keywords: Asset frame, deficit frame, ethical storytelling, SNAP-Ed, reporting

Asset Framing and Ethical Storytelling as Tools to Empower Communities and Reduce Stigma: An Examination of Virginia SNAP-Ed Reporting Practices

In 2022, the United States Department of Agriculture (USDA) announced a four-year strategic plan focused on reducing health inequities, including the intent to examine structural barriers to traditionally underserved populations (United States Department of Agriculture (USDA), 2022). Supplemental Nutrition Assistance Program-Education (SNAP-Ed), a USDA-funded program, aims to promote health-related behaviors for individuals eligible for SNAP, formerly known as the Food Stamp Program. The USDA's focus on reducing health inequities provides an opportunity for SNAP-Ed implementing agencies to examine how their practices may contribute to health disparities.

Virginia SNAP-Ed administrators ensure SNAP-Ed meets federal civil rights requirements and makes efforts to reach historically marginalized populations (United States Department of Agriculture Food and Nutrition Service, 2023). Still, additional efforts are needed to reduce health inequities. One strategy is through reporting, which is essential for the promotion of health equity. The way stories are told shapes how people view information about health inequities and the communities affected by them (American Medical Association Center for Health Equity, 2021). Leading with community assets is a way to avoid stigmatizing members of those communities. Some reports have previously used a deficit frame, highlighting and emphasizing problems faced by communities to bolster the program and justify continued funding (ASNNA, 2023). Deficit framing fails to account for structural issues and inequities that cause or exacerbate problems (Evans & Winson, 2014), potentially stigmatizing communities by framing people's temporary circumstances as intrinsic to their identities (Foot & Hopkins, 2010). Deficit framing can also reinforce harmful stereotypes and biases towards historically

marginalized communities, which can have many detrimental effects at the individual and community levels (ASNNA, 2023).

Asset-framing and ethical storytelling approaches move away from stigmatizing reporting practices, which is in line with a trauma-informed approach to community programming. Asset-framing focuses on community strengths before noting problems and acknowledges how communities can participate in the development of meaningful solutions (Morgan & Ziglio, 2007). An ethical storytelling approach recognizes the importance of stories, especially those shared by marginalized groups, and portrays those stories with dignity (Ethical Storytelling, 2018; Right to the City, 2022). Both approaches build trust between communities and facilitators, which is essential for community-based programming (Data Quality Campaign, 2021). They also allow for more sustainable programs because they utilize community strengths and promote community participation (Evans & Winson, 2014), making it easier to see possible solutions to environmental and systemic problems (Data Quality Campaign, 2021).

SNAP-Ed implementing agencies are required to submit annual reports to the USDA detailing their programmatic efforts and impacts. Annual reports on programming by Virginia SNAP-Ed for the USDA have the potential to stigmatize communities if written only to highlight SNAP-Ed accomplishments without considering the portrayal of SNAP-Ed participants and community partners.

The purpose of this project was to determine how the language used in the 2022 Virginia SNAP-Ed annual report for the USDA aligns with ethical storytelling and asset-framing practices (Virginia Cooperative Extension, 2022) and to suggest strategies for more empowering reporting practices that rely on an asset frame and ethical storytelling practices instead of a deficit frame.

Understanding the gap between current reporting and best practices allows for the development of strategies to move from stigmatizing language to an empowering narrative in future reports.

Method

The 2022 Virginia SNAP-Ed Report, the most recent annual report at the time of this project, was used as the focus of this evaluation to establish a baseline for ways in which the program could improve its asset-framing and ethical storytelling (Virginia Cooperative Extension, 2022). A deductive, content-coding approach was used to identify instances of asset-based framing, deficit-based framing, and ethical storytelling in Virginia SNAP-Ed reporting.

The guide, "Asset-Framing and Ethical Storytelling: A Toolkit for Centering Equity when Communicating Programmatic Success," was used as a standard of asset-framing and ethical storytelling to create a deductive coding system with which to analyze the 2022 annual report from Virginia SNAP-Ed (ASNNA, 2023; Virginia Cooperative Extension, 2022). This toolkit was developed by the Evaluation and Reporting Subcommittee of the National Association of SNAP Nutrition Education Administrators (ASNNA) Evaluation Committee in 2023 to promote data sharing among public health practitioners and disseminate reporting practices that move beyond current deficit-framing. The hope was that ASNNA members could use the toolkit's content in their respective SNAP-Ed programs to develop reports and messaging that amplify community voices and reduce the stigma associated with health disparities. The authors chose this toolkit to guide the researcher in creating codes for this project and because the toolkit focuses on practical examples of how to incorporate asset-framing into SNAP-Ed reports, allowing Virginia SNAP-Ed to examine old reporting practices and identify areas for improvement.

The components of the toolkit identified for the use of asset framing and ethical storytelling practices include the type of language used, the causes of discussed problems identified, the degree of collaboration with communities and partners shown, the emphasis placed on strengths and weaknesses of the community, who provided the included quotes and anecdotes, and the degree of sustained community involvement. Based on the toolkit, the researcher developed codes representing an asset frame and ethical storytelling as well as a deficit frame to most effectively identify areas for improvement. The codes included stigmatizing language, empowered language, systemic causes identified, presented as collaboration, presented as saviors, community strengths first, weaknesses emphasized, point of view of participants addressed, focus on the point of view of facilitators, and sustained involvement with the community (see Table 1 below for codes and their descriptions). The coding of this report was performed in Google Sheets. The report was systematically coded using the codebook by one researcher and reviewed by a second. In nearly all cases, the two researchers were in agreement on how the report should be coded. The one difference in opinion was over whether using "SNAP-eligible adults" was an example of stigmatizing language. Ultimately, the researchers agreed the concern was due to the socioeconomic implications of the phrase "SNAP-eligible" and the negative cultural connotations associated with utilizing nutrition supplementation programs such as SNAP. There were no discrepancies that required a review by a third researcher. Instances of each code were listed in a spreadsheet with notes on findings and potential further actions for each category.

Once the annual report was coded and reviewed, examples from each category were considered to determine how Virginia SNAP-Ed could modify its current reporting to better

align with the asset-framing and ethical storytelling practices outlined in the ASNNA toolkit (ASNNA, 2023).

Results

The Virginia SNAP-Ed 2022 Annual Report contained instances of an asset frame, a deficit frame, and ethical storytelling practices. We did not find any examples of presenting SNAP-Ed as a savior, emphasizing community weaknesses, or presenting community strengths first. Overall, a deficit frame was not frequently used, but there were also not many examples of an asset frame or ethical storytelling. Instead, the report utilized more neutral language that was not stigmatizing but presented additional opportunities for adding nuance to community challenges and utilizing more empowered language.

We identified seven instances of stigmatizing language throughout the annual report. One was "low-income families," and the other six were instances where "SNAP-eligible" was used to describe a group of people. Both of these are examples of presenting challenges as personal characteristics. On the other hand, there was only one instance of empowered language when the author was explaining the reasons behind the decrease in program graduates, which was, "This is a 16.6% decrease in program graduates from the previous fiscal year, demonstrating continued challenges with participant recruitment and retention during the COVID-19 pandemic. This decrease is also indicative of challenges with staff retention" (Virginia Cooperative Extension, 2022). This was coded as empowering language because it gives nuance to the situation and avoids blaming the participants for the problem.

Along these same lines, the report also identified one systemic cause related to the issues it discussed. The example identified was that the community was a "food desert," which made it hard for community members to access high-quality and nutritious food. This specific term is

increasingly contentious as it fails to acknowledge the ways that, historically, certain communities have been intentionally divested from (Reese, 2019). Still, in this context, its use represents an attempt to acknowledge the complexity of the challenges in accessing nutritious food. In future reports, the term "food apartheid" would be more appropriate than "food desert" (ASNNA, 2023).

In the report, there were six instances of focusing on the point of view of participants and four instances of focusing on the point of view of facilitators and volunteers. Focusing on the participants' points of view came in the form of direct quotes, compiling qualitative feedback on programming, and the direct collection of feedback. One example was, "One participant stated that she met goals and that she now checks food temperatures after cooking and that she covers her leftovers or promptly puts her leftovers in the refrigerator." Although this is not a direct quote, it is a good example of what including participants' perspectives in reporting should look like. It is a summary of qualitative feedback provided by the participant.

Focusing on the point of view of facilitators came in the form of facilitators speaking on behalf of participants/participants' guardians, as in this example:

> Another Peer Educator said she saw a participant with her grandmother in the grocery store parking lot. [The participant] told the Peer Educator that she was making the recipes at home that she had learned in Teen Cuisine. The participant's grandmother was thrilled her granddaughter was cooking at home (Virginia Cooperative Extension, 2022).

Though this excerpt does incorporate information about the participants' perspectives on SNAP-Ed programming, it does not come directly from the participants. In order for ethical storytelling principles to be fully embraced, quotes should be collected directly from the participants or the participants' caregivers without using facilitators as a go-between whenever

possible. This minimizes the chance of misrepresenting their words and eliminates the possibility of interference from facilitator bias.

Additionally, there were four examples of presenting programming as a collaboration. All of these examples showed responsiveness to community and participant feedback. One such example is when the report indicated SNAP-Ed was adding a second-level course in 2023 in response to community requests for additional training in farmers' market management. Finally, the report discussed one example of continued community involvement: how the school sustained a garden for youth programming after the program ended.

We did not identify any examples of presenting the program as a savior, presenting the strengths of the community first, or emphasizing weaknesses (see Table 1).

Table 1

Codes, Definitions, and Examples Used to Assess Virginia SNAP-Ed Reporting for the Presence of Asset Frame, Deficit Frame, and Ethical Storytelling Principles.

Code	Concept Addressed	Definition	Example
Stigmatizing Language	Deficit framing	Presents challenges as personal characteristics, perpetuates stereotypes, utilizes deficit frame, uses a shaming or judgmental tone, simplifies or dramatizes a situation, overemphasizes limited resources, and participation is described in passive language.	"Low-income families"
Empowered Language	Asset framing	Uses person-first language, takes on a hopeful or optimistic tone, nuance is given to the story, challenges are presented as temporary circumstances, and language gives agency to participants.	"This is a 16.6% decrease in program graduates from the previous fiscal year, demonstrating continued challenges with participant

			recruitment and retention during the COVID-19 pandemic. This decrease is also indicative of challenges with staff retention."
Systemic Causes Identified	Asset framing	Explores social and environmental factors, problems not shown as individual failures, and the majority group is not presented as the basis of comparison.	"'Our community is a food desert."
Presented as Collaboration	Ethical storytelling	Community represented as an equal partner, participants are shown as active participants in improving their own lives, and the program was responsive to partner feedback.	"Parents received a corresponding newsletter to support activities and behaviors learned in the classroom at home."
Presented as Saviorism	Deficit framing	The text presents SNAP-Ed as a savior of the community, and programs are presented as fixing the problem with limited to no mention of community involvement.	No instances found
Community Strengths First	Asset framing	Assets are identified before weaknesses are discussed, the community is uplifted, and program outcomes are tied back to community strengths.	No instances found
Weaknesses Emphasized	Deficit framing	Challenges are discussed before community assets. Alternatively, only challenges are discussed.	No instances found
POV of Participants Addressed	Ethical storytelling	Includes info about participant satisfaction in the program in direct quotes or in summaries of statements collected directly from participants.	"I really enjoyed the tips on safe food preparation and storage. Also, I learned a lot about reading labels and understanding healthy

			portions. I will use the things I have learned in my daily life and definitely spread the word."
Focus on Point of View of Facilitators	Deficit-framing	All/most of the direct quotes came from program facilitators and not participants. All/most input about the program presented came from volunteers and facilitators. This includes anecdotes about participants that were relayed by facilitators and not the participants themselves.	"One peer educator related the following story about an interaction with a 6th grade Teen Cuisine participant's mother. The student's mother who is employed by a local school stopped the peer educator as she was leaving class. 'You have made a huge impact on my daughter.' -Mother of SNAP-Ed youth participant."
Sustained Involvement with the Community	Ethical storytelling	The sustainability of the program is addressed, the involvement of the community lasts beyond direct involvement of the organization, and the community is consistently engaged in a meaningful way.	"The garden will be used by agriculture teacher in conjunction with the special education and culinary arts programs."

Note: All codes were developed from "Ethical storytelling & asset-framing: A toolkit for centering equity when communicating programmatic success" (ASNNA, 2023). All examples were taken from the annual Virginia SNAP-Ed report (Virginia Cooperative Extension, 2022).

Discussion

The purpose of this project was to determine how the language used by Virginia SNAP-Ed in its 2022 annual report for the USDA, the program funder, aligned with asset-framing, ethical storytelling, and/or deficit-framing concepts. In addition, the purpose was to outline

strategies for more empowering reporting practices that rely on asset-framing and ethical storytelling practices instead of a deficit frame.

Through this project, we identified seven instances of stigmatizing language indicative of deficit-framing practices and only a few examples of explicit use of an asset frame or ethical storytelling. Instead, the language throughout was more neutral which prevents a good foundation for modifying reporting practices to be more empowering to communities. The instances of stigmatizing language in the report could be addressed in future reporting by using person-first language when describing socioeconomic status and SNAP eligibility. For instance, "low-income families" could be replaced with "families living below the federal poverty line" (Virginia Cooperative Extension, 2022; National Institutes of Health, 2024). The use of stigmatizing language in the 2022 Virginia SNAP-Ed is not in line with recommendations to use person-first language when discussing income and indicators of socioeconomic status and that state-specific indicators, rather than general statements, should be used whenever possible (American Psychological Association, 2020; Nesbitt-Johnston Writing Center, 2021). Along these same lines, avoiding racialized or stigmatizing language is particularly important as this can reflect unconscious biases, perpetuate stigma, and even decrease program participation (American Psychological Association, 2022; Palmer, 2018; Puhl et al., 2011).

While instances of deficit framing were not prevalent in the Virginia SNAP-Ed report, this does not automatically indicate that an asset frame or ethical storytelling principles were present. Instead, neutral language was used within the report when describing participants and partners. Neutral language was used in the report when participants of SNAP-Ed programming were not stigmatized, but empowering language and community strengths were not included.

An example of neutral language from the 2022 annual report is when the author quotes a parent who was expressing gratitude for the things their child learned in the program (Virginia Cooperative Extension, 2022). This does not stigmatize the child or the parents, but to move toward an asset frame, the author could have spent more time discussing the strengths of the children in the program or the parents working to reinforce what their children were learning in the classroom at home. Research has shown that members of historically minoritized communities (who are more likely to be impacted by nutrition insecurity) desire to purchase healthier food options, but far travel distances and inflated prices make doing so a challenge (Sansom & Hannibal, 2021). Therefore, it is important that this perspective be reflected in nutrition education reporting.

This project revealed a need for Virginia SNAP-Ed to move beyond person-first language to consideration of the context and connotation of the language used in annual reports. There is also an opportunity to include empowered language in reporting by giving nuance to stories of challenges faced by communities and by representing communities as groups of multifaceted, diverse individuals rather than portraying them as monoliths. Moving towards a more empowering approach to reporting could also look like more explicitly acknowledging systemic barriers participants face in making behavior changes, such as time constraints due to work schedules, lack of child care or transportation preventing access to educational programs or access to medical care and utilities as competing priorities to food security (Clayton et al., 2021; Vilar-Compte et al., 2021).

Additional context about barriers to proper nutrition education could also be added to avoid potential assumptions by the audience that the parents should have taught the child these things. For example, there is room to acknowledge how corporations that market unhealthy food

are more likely to focus on populations with limited access to accurate nutrition information and how this can impact food choices by children and their parents (Silva et al., 2023). Along these same lines, there is room for acknowledging systemic causes or barriers to optimal health (however that is defined per community or individual) when discussing community health or outcomes in SNAP-Ed reports. Adequately acknowledging structural barriers is the first step to addressing them (Braveman et al., 2022). Virginia SNAP-Ed can incorporate language on systematic barriers to demonstrate its commitment to equity by addressing those barriers in addition to providing education on nutrition, food resource management, and physical activity to community members.

In addition to acknowledging systemic barriers participants may face, their strengths and assets should be explicitly discussed in order to fully embrace ethical storytelling practices and the use of an asset frame, as this is a component that was absent from the 2022 report. Focusing on communities' strengths allows public health practitioners to involve communities in an empowering way by showing how their unique assets led to the development of effective solutions for the challenges they are facing (Morgan & Ziglio, 2007). A practical example of what this could look like is more clearly expressing how the contributions of community partners helped make programming successful. Including information about the importance of community partners is an essential part of an asset frame because it acknowledges the assets that existed in the community before SNAP-Ed was involved and avoids presenting SNAP-Ed as a savior (ASNNA, 2023).

Another important component of creating empowering reporting practices is relying on direct quotes and feedback from participants to evaluate and communicate programmatic success. While the 2022 report did incorporate some direct quotes and feedback from the

participants, many of the anecdotes used were based on retellings of events from facilitators and not from the participants themselves. In order to embrace ethical storytelling, participants should be given more opportunities to speak for themselves to reduce the possibility of facilitator bias clouding feedback on programming. In the future, mechanisms should be developed to obtain more direct quotes from program participants—particularly from community partners and parents of youth participants. Furthermore, it is notable that the majority of the qualitative feedback coming from facilitators and peer educators was on youth programming and not adult programming, highlighting a need for more direct feedback in this area in particular. However, it can be difficult to obtain direct feedback from youth participants, especially if they are young, so it is suggested that SNAP-Ed develop ways of obtaining feedback from parents in order to gain a perspective on youth programming that is not as reliant on facilitators. In addition to direct feedback from participants, feedback from partnering community organizations, such as schools and local farmers markets, should also be more explicitly addressed.

Other components identified as important for programs looking to move toward an asset frame with their reporting but were not examined in this project were the report's accessibility and the degree of consent gathered from the community in order to share their stories in the report. Furthermore, it is important that communities have the opportunity to review the data being collected about them because historically, not being allowed to do so is one of the reasons people from historically marginalized groups are often mistrustful of researchers (ASNNA, 2023; Oritz et al., 2020). These components were excluded from the project because they were hard to determine retroactively, but their importance to ethical storytelling should not be discounted (ASNNA, 2023).

This manuscript adds to the growing literature on the use of ethical storytelling and the importance of framing within reporting on public health promotion, as well as for broader equity-focused efforts in SNAP-Ed administration and reporting (Bode et al., 2023; Bruno et al., 2024). While storytelling is a powerful methodology that has been successfully used to effect change by honoring and highlighting local and cultural knowledge, there are still significant challenges with its ethical implementation (West et al., 2022). Organizations that utilize storytelling in their literature must devote the time necessary to determine how to tell communities' stories without stigmatizing or misrepresenting them.

This evaluation was specific to Virginia SNAP-Ed and is not generalizable. This was an initial investigation of the language used in one current SNAP-Ed report by one agency. In order to get a better sense of how Virginia SNAP-Ed's reporting practices have changed over time, examinations of multiple reports could be performed and their results could be compared. This would allow for trends in the extent to which an asset frame has been utilized over time to be identified. Future research opportunities include a more systematic investigation of the language used through all of Virginia SNAP-Ed's materials, including social media messaging and curricula, in addition to USDA reports. Audits have been conducted previously on SNAP-Ed curriculum and could serve as a blueprint for a broader programmatic audit (Bruno et al., 2024; Moss et al., 2023).

Although the generalizability of this project may be limited, it has profound implications for how Virginia SNAP-Ed will move forward with its programming and reporting practices. For future annual reports, a mechanism will be developed by which more direct feedback can be collected from program partners and community partners. This may involve restructuring the surveys participants receive at the conclusion of the program to allow for more space for open-

ended feedback or performing and recording exit interviews to get a more holistic view of the participants' unique perspectives. A similar process could also be used with community partners to ensure they feel valued and appreciated for their contributions to Virginia SNAP-Ed programming.

Another potential action step would be to institute a training for Virginia SNAP-Ed employees, especially those with reporting duties, to emphasize the importance of asset-framing and ethical storytelling principles and how they can help center participant voices. This would hopefully result in an increase in the motivation of facilitators to collect direct feedback from participants via surveys, interviews, etc. so there is no chance of unintentionally injecting their bias into the participants' perspectives. Furthermore, it would be helpful for facilitators and peer educators to have this training because once they understand the importance of asset framing and ethical storytelling for empowering the communities they work with, they may be able to identify community assets that the authors of the reports missed since they are more deeply embedded in those communities.

Additionally, this project could be repeated with other reports put out by Virginia SNAP-Ed and even other types of outward-facing communication such as social media posts. Generalizing this method of evaluating SNAP-Ed reporting practices would involve collecting this same data from agencies across the United States and not just in Virginia. This would help determine whether this operationalization of the toolkit is a practical way of putting the authors' ideas into practice or if more work needs to be done to develop a different method by which programs can evaluate existing literature. Sharing this project with ASNNA and explaining to SNAP-Ed representatives of different states how they could use it to center their reporting around asset framing and ethical storytelling would be a good first step in this process. Using

their data and feedback, the coding process could be revised if necessary, so that it is simpler for authors of SNAP-Ed reports to utilize.

Conclusions

This project found that the 2022 Virginia SNAP-Ed Annual report occasionally utilized a deficit frame through the use of stigmatizing language to describe groups of people and a reliance on quotes that did not come directly from participants. Deficit framing was not frequent in the report, but neither was asset framing or ethical storytelling. With these findings in mind, many strategies can be used to make reporting more empowering to participants and partners, including emphasizing communities' pre-existing strengths and collecting more direct quotes.

Some of the suggested strategies can be easily implemented, while others will require restructuring how SNAP-Ed collects data for their annual reports to the USDA and therefore may require more time before they can be enacted. In the short term, authors of annual reports should be more cognizant of the language they use to refer to communities and replace stigmatizing language with person-first, empowering language. An example of a strategy requiring a restructuring of how SNAP-Ed collects data, and is, therefore, a long-term goal, is collecting more quotes directly from participants instead of collecting quotes from educators about participants. This is a realistic goal but may involve editing the evaluation surveys given to adult participants to allow for more opportunities to provide qualitative feedback on SNAP-Ed programming. It will also require developing mechanisms to collect feedback from parents of youth participants and from community partners. Moving towards an emphasis on community and participant strengths may also take more time as this was not present in the 2022 annual report at all. This may include restructuring the format of the reports so that each program description begins with an acknowledgment of the ways in which the communities were

equipped to deal with the challenges they were facing before SNAP-Ed became involved. This evaluation can be repeated with future annual reports to track how the implementation of these strategies is progressing.

Future studies conducted by other SNAP-Ed programs across the country can adopt the coding system from this project to evaluate their own literature. This will allow for a determination to be made as to whether the current coding system can be operationalized on a greater scale or if it needs to be modified before it can be utilized by a wider range of public health practitioners. Additionally, this evaluation approach could be tested by individuals from other nutrition education or public health promotion programs to determine whether this framework could be useful to organizations outside of SNAP-Ed. If necessary, these programs could modify the coding system in order to better evaluate the style of their reports.

Reflection

More effort is needed to adjust Virginia SNAP-Ed's language to demonstrate its commitment to health equity to its participants. This evaluation was the first step in equity promotion through reporting for Virginia SNAP-Ed. While this effort will allow some initial adjustment of language for USDA reporting, a more comprehensive review of Virginia SNAP-Ed reports is needed.

Participant voices are key to informing how SNAP-Ed programs can meet their needs (Gosliner & Shah, 2019). Centering these voices aligns itself with a trauma-informed approach to programming by highlighting community needs, preferences, strengths, and feedback (ASNNA, 2023). To increase the equity focus and promote the utilization of a trauma-informed approach, community members can be included in future evaluation efforts of language used in SNAP-Ed. For example, quotes or stories can be vetted by community members before they are

included in reports. Community members and partners can also review the framing of quotes and stories to determine if they represent their perspective before reports are finalized and shared with program funders. This additional level of transparency and inclusion can help increase community members' trust in Virginia SNAP-Ed and may provide a foundation on which to build rapport with those who are suspicious of government-funded initiatives due to their own past traumatic experiences or the generational traumas of their communities (Hecht et al., 2018). Georgia SNAP-Ed has used community advisory boards to facilitate community listening sessions (Gallo et al., 2024), demonstrating the feasibility of involving community members and partners in decision-making. This technique of involving community members in setting priorities could translate into other programmatic improvement efforts. Centering participant perspectives is essential for using a trauma-informed approach for future efforts (Bhagwan & Markworth, 2022).

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Trauma-Informed Nutrition Education for Black/African American Perinatal Women with Substance Use Disorder: A Pilot Study

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Abstract

Background: Trauma-informed nutrition practices can enhance the physical and mental health of perinatal women of color with substance use disorder (SUD). This pilot study explored the organization's and participants' readiness for a trauma-informed intervention and its effectiveness in improving food resilience among perinatal Black and African American women (BAAW) in a multidisciplinary SUD treatment program. The goal was to establish preliminary research and expand existing literature on trauma-informed nutrition education interventions.

Methods: The study was conducted in three phases: assessing organizational readiness, evaluating participant readiness, and measuring the effectiveness of the intervention. Members of the organization's leadership and fifteen individuals enrolled in a SUD outpatient program participated. The study used questionnaires to assess the organization's and participants' readiness and six human-food interfaces: family food habits, food-related feelings and thoughts, nourishment, individual food habits, food skills, and personal nutrition. Both qualitative and quantitative data were gathered, and a paired t-test was used to evaluate improvements in these interfaces.

Results: Findings showed that the organization was prepared to adopt the innovative trauma-informed intervention. Participants showed readiness to engage, indicating a positive sign for adapting to change. There was significant improvement in food skills ($p < .04$), while other food interaction behaviors showed positive trends that were not statistically significant.

Conclusion: This pilot study provided baseline data on the significance of organizational support in adopting an innovative trauma-informed intervention and its effectiveness in promoting behavioral changes in BAAW with SUD. Future research should address the identified limitations and challenges related to implementation.

Keywords: Black Women, Pregnant and Postpartum Women, Trauma-Informed, Nutrition Education, Substance Use Disorder

Trauma-Informed Nutrition Education for Black/African American Perinatal Women with Substance Use Disorder: A Pilot Study

Healthy women lead to healthy families and society (Carr & Springer, 2010). Society faces a crisis when the health of women is in danger (Tilly & Scott, 2016). Traumatic experiences and adverse environmental factors have lasting effects on the health of Black and African American women (BAAW) and their children (White, 2023). Among infants born with medical issues, BAAW births had the highest rates of neonatal abstinence syndrome and mortality (Ely & Driscoll, 2024). Additionally, BAAW of low socioeconomic status experience health disparities at a higher rate (Woods-Giscombe, 2010).

Health disparities affect racial and ethnic minorities in the U.S., predominantly BAAW, leading to higher rates of chronic disease and premature death compared to non-Hispanic whites (Baffour & Chonody, 2009). Moreover, low-income BAAWs with substance use disorder (SUD) face significant health disparities (Oser et al., 2019). Variables contributing to health disparities in BAAW have been documented for decades (Baffour et al., 2020). Healthcare initiatives have targeted the needs of BAAW (Brach & Fraser, 2000); unfortunately, the gap remains unchanged. Risk factors make tailored support services crucial for perinatal BAAW with SUD (Vilsaint et al., 2019).

Trauma-informed care recognizes that trauma and health disparities can impact health outcomes (Han et al., 2021). Targeted nutrition strategies are essential to meet the specific needs and health disparities faced by pregnant BAAW (Grant at el., 2004), particularly those impacted by SUD (Rodriguez de Lisenko et al., 2022). It has been established that SUD is associated with poor nutritional status, malnutrition, and various forms of disordered eating, including food insufficiency and food insecurity (Wiss et al., 2018). Unfortunately, few studies examine the

nutritional risk factors of perinatal BAAW with SUD. Due to these disparities in health outcomes, finding ways to improve these health outcomes is imperative.

Nutrition education that incorporates trauma-informed practices offers a supportive space for perinatal BAAW with SUD to address their relationship to food and overcome barriers (Han et al., 2021). Such practices enhance recovery, reduce relapse rates, and promote healthier behaviors (Mosley & Lanning, 2020; Rodriguez de Lisenko et al., 2022). This pilot study explored the effectiveness of an innovative trauma-informed nutrition education intervention. It followed a structured three-phase approach: first, assessing organizational readiness; second, evaluating participant readiness; and finally, measuring the effectiveness of the intervention. The objective of this pilot study was to contribute preliminary research that enhances the existing body of literature regarding the efficacy of trauma-informed nutrition interventions for perinatal BAAW with SUD.

Method

The pilot study was conducted in partnership with a community-based organization (CBO) in Northern California that serves pregnant BAAW with known histories or current SUD and BAAW mothers with substance-exposed infants. The study was conducted in three distinct phases. The first phase involved assessing the organization's readiness. The Principal Investigator (PI) invited members of the organization’s leadership team to participate in the study via a formal email. Leadership team members were surveyed to evaluate the organization's readiness to adopt the intervention. The second phase focused on assessing the readiness of perinatal BAAW experiencing SUD to actively participate in the intervention. Participants were referred to the PI by peer navigators who provided home-visiting case management to perinatal BAAW with a SUD history. Finally, the third phase measured the effectiveness of the trauma-

informed nutrition education intervention to improve six human-food interfaces in perinatal BAAW with SUD. Table 1 presents the pilot study's logic model as a visual tool for planning and implementation. It depicts inputs, outputs, and expected outcomes, clearly stating the study's outcomes and intentions.

Table 1

Logic Model for the Evaluation of a Trauma-Informed Nutrition Intervention

Trauma-Informed Nutrition Intervention Summary

INPUTS	OUTPUTS		OUTCOMES		
Resources	*Activities*	*Participation*	*Short-Term*	*Medium-Term*	*Long-Term*
Principal Investigator (PI) P.I. Nutrition Expertise Trauma-Informed nutrition curriculum Surveys Peer Navigators Organization's Leadership Participants Funding (Participant's incentives) Time and effort	Assessment of organization and participant readiness Solicit support and permission from the organization's leadership. Communicate with peer navigators to provide study materials. Recruit participants according to inclusion and exclusion criteria. Conduct research to assess organization	Researcher Organization's Leadership Pilot study participants Peer-Navigators	A better understanding of preparedness to change A better understanding of trauma-informed nutrition education practices in the treatment of SUD Baseline evidence of the effectiveness of these practices in the field of nutrition targeting perinatal BAAW with SUD Increase research knowledge and understanding of trauma-informed care for perinatal BAAW. Increase research focusing on adverse psychological risk	Increase the number of participants enrolled in a program Stimulate additional research to be published addressing this topic and target population. Increase the number of programs that include trauma-informed care as part of common practices. Initiate new policies and guidelines for trauma-informed	Increase the number of people who make behavior change Increase community awareness and engagement in trauma-informed nutrition practices in SUD. Inform public health approaches and incorporate nutrition education. Improve the social and political issues and visibility around pregnant

Trauma-Informed Nutrition Intervention Summary

INPUTS	OUTPUTS		OUTCOMES		
Other Skills & Resources	readiness and evaluate the trauma-informed nutrition education curriculum. Conduct and perform data analysis. Evaluation of a trauma-informed nutrition education curriculum.		factors in perinatal BAAW. Improve food habits and decision-making in perinatal BAAW affected by toxic stress and trauma.	nutrition practices in SUD facilities. Improve psychological and environmental risk factors affecting recovery of BAAW in SUD programs.	BAAW with SUD. Increase availability of funding for additional research, program implementation and sustainability
Assumptions: ● Psychological and environmental risk factors are major blocks affecting the full recovery of BAAW in SUD programs ● Food habits and decision-making in BAAW are deeply affected by toxic stress and trauma. ● There is limited research focusing on adverse psychological risk factors in perinatal BAAW			External Factors: ● The social and political issues and visibility around perinatal BAAW women with SUD. ● The availability of funding for additional research, program implementation and sustainability		

Note. This table displays the logic of a complete list of inputs, outputs, and outcomes of trauma-informed intervention for this study.

IRB approval was received for this study (STUDY001956). In this pilot study, the human subjects were perinatal BAAW with SUD, considered a protected population in social research. Therefore, IRB approval was an integral part of this study.

Sample Population and Recruitment

During the initial phase of the study, the PI secured approval and obtained contact information from the CBO's Executive Director. This allowed the PI to formally invite the organization's leadership team members to participate in the study via email. Five individuals were contacted, and all responded by completing the organizational readiness questionnaire (Centers for Disease Control and Prevention, 2019).

During the study's second phase, the PI enlisted participants with the support of peer navigators, who promoted the study to women. Peer navigators utilized a script to encourage participation in the study, either in person or by phone, from potential participants. Interested individuals received a flyer with the PI's contact details and then contacted the PI by phone to schedule their participation. Interested women contacted the PI to enroll for the intervention and data collection. At the end of the intervention, participants received a $100 gift card as an incentive to encourage their engagement and ensure they completed the intervention.

The eligibility criteria for participants were as follows: self-identification as BAAW, aged 18-40, BAAW who were pregnant or have recently given birth, BAAW with a history of SUD, BAAW currently struggling with SUD, and BAAW whose infants have been exposed to substances. All participants were required to have a connection with a peer navigator.

Initially, 20 individuals volunteered for the pilot study, but five dropped out, leaving 15 participants. The study implemented a trauma-informed nutrition education intervention, serving 25% of the BAAW participants enrolled in the SUD program, which had 80 women. All participants had regular and close interactions with their peer navigator throughout the intervention. The demographic of participants is described in Table 2.

Table 2

Participant Demographics

Participant Demographic	**%**	**n=15**
Age *M*= 22 yrs.		
20-30	40%	6
30-40	53%	8
40+	7%	1
Single	60%	9
Married or in a "cohabiting relationship	33%	5
Separated	0.0%	0
Divorced	7%	1
Widowed	0.0%	0
Less than high school	7%	1
High school	47%	7
Vocational/Trade/Technical School	13.3%	2
Some college	27%	4
Bachelor's degree	0.0%	0
Advance degree	7%	1
Employed		
Yes	27%	4
No	73%	11

Description of Intervention

The pilot study ran from January 2021 to July 2021. The PI sought support from the organization's leadership and management. After receiving permission to conduct the study, the PI emailed peer navigators to discuss the study protocol and outreach materials to generate interest in the nutrition intervention. Peer navigators encouraged participants to contact the PI to enroll. Participants signed a consent form and were given available times to start the nutrition intervention.

The PI conducted five individual phone sessions on nutrition, incorporating trauma-informed engagement and motivational interviewing. The curriculum aimed to improve cooking skills, promote food safety and encourage healthy eating practices. Due to COVID-19, practical cooking exercises were not possible. The program also focused on stress, emotional eating, health values, and feeding children. It included guided discussions and interactive exercises to build healthy connections to food, self, and community, supporting participants' nutritional well-being.

Instrumentation and Measures

In this pilot study, we collected data using open-ended and multiple-choice questions. We also gathered quantitative data on the organization's readiness to adopt an innovative trauma-informed nutrition educational intervention, the participants' readiness to accept the intervention, and the curriculum's effectiveness in improving food knowledge and resilience among perinatal BAAWs with SUD in an outpatient recovery program. The formative data on the organization and participants' readiness guided the planning and implementation of the intervention to address participants' needs.

Procedures of Study

Phase 1: Organizational Readiness

Five key leaders, including one board member, executive director, program director, program manager, and peer navigator, were chosen to complete a readiness questionnaire. The study's PI emailed them to provide their perspectives on the organization’s operations. The study assessed organizational readiness using the updated 2019 CDC Worksite Health ScoreCard, validated at 93 worksites (Centers for Disease Control and Prevention, 2019). It confirmed face validity and reliability through cognitive interviews and site visits. The Organizational Readiness

Survey (ORS), adapted from the CDC ScoreCard's Organizational Supports module, includes open-ended and multiple-choice questions. The ORS aligns with the Consolidated Framework for Implementation Research's fourth domain, focusing on the interplay between individuals and organizations and its impact on behavior change (Damschroder et al., 2009). The survey also incorporates Roger's Diffusion of Innovation Theory, highlighting the importance of communication channels, information sources, and influence in successfully spreading innovations (Rogers, 2002). The ORS collected initial data to gauge the organization's readiness by assessing leadership support for the trauma-informed nutrition education intervention. The survey included nine open-ended questions to gather data on the organization's culture, structure, commitment, and readiness for change. This data was used to predict the leadership's readiness to adopt and support the dissemination of the new intervention.

Phase 2: Participants Readiness

The study's second phase assessed participants' Stages of Change, food habits, and emotional state. The nutrition consultation section of the Health Behavior and Stages of Change Questionnaire (HBSCQ)(Gonzales-Ramirez et al., 2017) assessed participants' readiness and openness to receive professional nutrition information. For the purpose of this study, only the nutrition consultation section of the questionnaire was administered to women before participating in the intervention. Other parts of this initial assessment included an open-ended question regarding participants' motivation to engage in the intervention and data on current physical activity levels to assess participants' interests and health behaviors. The formative data collected informed the PI's method for delivering the intervention, tailored to each participant's initial stage of change at the beginning of the program (Prochaska & DiClemente, 1983).

Phase 3: Intervention Assessment

The final stage of the study utilized the principles of Motivational Interviewing (Miller & Rollnick, 2023) to deliver the intervention to participants. The effectiveness of the trauma-informed nutrition education intervention was assessed using pre- and post-surveys. Pre- and post-surveys were designed to assess six areas of human-food interfaces and the mental state of the participants: 1) family food habits, 2) feelings and thoughts, 3) food and nourishment, 4) individual food habits, 5) individual food skills and 6) personal nutrition habits. Seven questions assess family food habits. The questionnaire was developed specifically for this curriculum, as no previously validated tool was available. Table 2 provides information on the study objectives that were measured.

Table 3

Measurable Study Objectives

Study Objective	Measurement	Data Collection Instrument
Improve in family food habits	7-question scale. Response options (5-points): never, seldom, sometimes, most of the time, and almost always	Pre- and Post-Intervention Survey
Improve in feelings and thoughts	12-question scale. Response options (5-points): strongly disagree to strongly agree	Pre- and Post-Intervention Survey
Improve in food and nourishment	4-question scale. Response options (5-points): strongly disagree to strongly agree	Pre- and Post-Intervention Survey
Improve in individual food habits	5-question scale. Response options (5-points): never to almost always	Pre- and Post-Intervention Survey
Improve in individual food skills	9-question scale. Response options (5-points): poor to good	Pre- and Post-Intervention Survey
Improve in personal nutrition habits	6 food frequency questions. Response options (4-7 points): rarely eat to 4 or more times a day.	Pre- and Post-Intervention Survey

Note. This table displays the measurement of study objectives, measurement tools, and data collection tools used for this study.

Data Collection

Formative research occurred during phases 1 and 2 of the pilot study. Phase 1 collected quantitative and qualitative data from key members of the organization's leadership through an organizational readiness survey. Phase 2 collected quantitative data from the focus population through the nutrition consultation survey, an open-ended question regarding motivation to participate, and physical activity behavior. Lastly, phase 3 assesses the impact of the intervention on participants' human-food interfaces, which was evaluated using pre- and post-intervention food behavior surveys provided before and after the intervention.

All women participating in the study received a consent form and information about the research objectives, incentives, and data collection methods. The PI contacted participants by phone at various times during the day to deliver the trauma-informed nutrition education intervention. The information regarding the study and intervention was presented using well-structured scripts, ensuring clarity and accessibility for all participants. The PI also gathered data by taking field notes and memos to keep a record of participant interactions and personal reflections. All participants received a $100 gift card as an incentive following the completion of the intervention.

Data Analysis

The study analyzed qualitative data by reviewing and organizing it into codes and themes that were combined in a coherent manner. Excel was used to conduct content analysis. The PI created a codebook by coding emergent themes. A trained research assistant coded 20% of the data and examined inter-coder reliability. Any discrepancies between the two coders were discussed and resolved until they reached an agreement of at least 90%. The study employed the

constant comparative method and updated the codebook accordingly. The qualitative and quantitative data offered insights into the organization's readiness to adopt the innovation and the participants' willingness to receive the intervention. Based on the assessment of engagement level, investment, and collaboration in developing the innovation infrastructure, the study grouped the themes into specific categories, revealing the characteristics and inner workings of the organization's readiness to adopt the innovation. For participants, the open-ended questions and surveys provided baseline data on the stage of change, motivation, and physical activity behavior.

The pilot study also used Qualtrics, a HIPAA-compliant survey system from the University of South Florida, for data collection. Data safety was ensured through Transport Layer Security encryption.

This study tested the trauma-informed nutrition intervention as an independent variable, while human-food interfaces and mental state were measured as dependent variables. The dependent variables included family food habits, feelings and thoughts, food and nourishment, individual food habits, individual food skills, and personal nutrition habits. Descriptive statistics were used to analyze the data distribution of each scale, using frequencies, percentages, means, and standard deviations. A paired sample t-test was used to examine the significant improvements in dependent variables after participating in the intervention compared to baseline data to achieve the study's objectives and test hypotheses. A two-tailed hypothesis testing was used with a significance level of $p < 0.05$. Non-normally distributed data were transformed before the analysis, or a non-parametric statistic test, Wilcoxon test, was performed. It is important to note that the hypothesis testing was exploratory due to the small sample size.

Results

Table 4 shows initial data from the ORS of five leaders at the partnering organization, providing insights into their readiness to adopt the trauma-informed nutrition intervention. The findings cover various aspects, including organizational culture, leadership commitment, and readiness to sustain the intervention.

Table 4

Organizational Readiness Assessments

4.1 Organization Readiness Leadership Data

	Board member	Organizational management	Program management & operations	Directly implementing services with target population	Community partner supporting the organization
Primary role	0.0%	25%	50%	0.0%	40%
I often do this as well	0.0%	25%	25%	25%	20%
I sometimes do this	0.0%	50%	0.0%	50%	0.0%
I never do this	100%	0.0%	25%	25%	40%

Note. This table shows the engagement levels and roles of the organization's leadership team, based on the percentage of respondents.

4.2 Organizational Readiness Qualitative Data

Readiness Qualitative Question	Percentage of Responses
Is there a plan for nutrition education services?	
• Yes, our plan includes specific materials and procedures on nutrition education	0.0%
• Yes, our plan mentions nutrition, but we do not have set materials and procedures	20.0%
• No plan, but we include nutrition education when it makes sense	60.0%
• No, we do not currently incorporate nutrition education in our approach.	20.0%

How are nutrition education services funded?	
• Our funding requires that we include it in our services	0.0%
• Our organization provides it, but it is not required by our funding	40.0%
• Our organization does not directly fund nutrition education but provides it using partners who are separately funded	60.0%
• We do not provide nutrition education in our services	0.0%
How does nutrition education fit into the organization's culture?	
• Our organization is well-suited and very interested in providing nutrition education services	60.0%
• We are interested, but not sure how we could provide it	40.0%
• We do not see a good cultural fit	0.0%
What resources are in place to support nutrition education services?	
• A clear mission that includes nutrition education	0.0%
• Expert credentialed team members who specialize in nutrition education	20.0%
• Trained nutrition education staff	0.0%
• Time allocated in our existing approach to focus on nutrition education	0.0%
• Connections with community partners who prioritize nutrition education	80.0%
• Funding focused on nutrition education	0.0%
• None of the above	0.0%
How important is nutrition education in the scope of services provided?	
• It is critically important and central to what we do	0.0%
• It is an important part of our services, and we prioritize it	20.0%
• It is a valuable part of our services, and we try to incorporate it where we can	80.0%
• We wish we could spend time with it, but often do not have enough time or resources	0.0%
• We do not focus on nutrition education	0.0%
How feasible would it be for the org. to provide more nutrition education?	
• Very feasible	60.0%
• Somewhat feasible, and of interest	20.0%
• Somewhat feasible, but not of interest	0.0%
• Difficult to add, though we wish we could	20.0%
• Difficult to add, and not of interest	0.0%

Note. This table displays qualitative responses to questions about organizational readiness to adopt a new intervention. It evaluated leadership perceptions about change, resources, trust in leadership, concerns or potential disruptions, and perceived willingness to adopt the intervention.

4.3 Receptiveness of organization to change

How receptive is the org. to providing nutrition ed.?	Org. Leadership	Org. Culture	Org. Staff	Participants
● Strongly against	0.0%	0.0%	0.0%	0.0%
● Somewhat against	0.0%	0.0%	0.0%	0.0%
● Somewhat receptive	20.0%	20.0%	20.0%	40.0%
● Strongly receptive	80.0%	80.0%	80.0%	60.0%

Note. The diffusion of innovation theory (DOI) also offers valuable insights into how organizational culture and leadership influence the acceptance of new ideas. Organizational culture refers to the values, beliefs, assumptions, and norms that shape an organization's activities and mindset (Harvard Business School Online, n.d.).

4.4 Organizational Leadership Attitude Towards Nutrition Education Services

Question: *Why include nutrition education services?*	Response by Participant
Participant 1	● *Addresses basic needs*
Participant 2	● *Food and nutrition are considered one of the basic needs that our clients need in order to live a healthy and happy life. As we have seen, even so more recently, not everyone has the same access to healthy foods or does not have the same resources or skills to prepare healthy meals. Being able to provide nutrition education as a resource and skill will be valuable to the clients and communities we serve.*
Participant 3	● *Our campus community focused on health sciences and education always needs more resources on health and wellness*
Participant 4	● *Trauma-Informed*

Note. This table displays the organization's leadership attitudes toward adopting a new intervention, which was used to assess leadership support.

Individual Readiness

To evaluate participants' readiness, the PI selected survey questions from the nutrition consultation section of the validated HBSCQ (Ramirez-Gonzales et al., 2017). The participants' readiness to participate in the intervention results show that 47% reported never receiving nutritional advice and did not plan to do so. On the other hand, 40% of the participants are in the maintenance stage, indicating that they have already consulted a nutritionist and are following their recommendations. Table 5.1 displays the participant's Stage of Change before the intervention.

Motivation to Participate

The open-ended question regarding motivation to participate shows that participants enrolled in the trauma-informed nutrition education intervention to gain knowledge, improve their health, and maintain healthy habits for themselves and their families. Over 60% of the participants joined the program to acquire knowledge, while others aimed to adopt a healthier lifestyle and maintain healthy habits. Table 5.2 displays the participants' motivation to participate in the intervention.

Physical Activity Engagement

The study found that 66.7% of participants engaged in daily physical activity, with walking being the most popular choice. However, 14% did not engage in any physical activity for more than 30 minutes. Table 5.3 shows the participant’s level of physical activity.

Table 5

Participant Readiness Assessments

5.1 Participants' Stages of Change

Stages of Change	%	n=15

I have been to see a nutritionist and although I have already been discharged, I continue the nutritional recommendations I received, and I have incorporated them into my daily life.	40%	6
I have never been to a nutritional consultation, and I have not thought to go.	47%	7
I have never been to a nutritional consultation, but I'm thinking of going, within the next 6 months.	7%	1
I have a first appointment with the nutritionist.	7%	1
I went to the nutritionist in the last 6 months, and I have followed his/her recommendations.	0%	0
I attended my consultations with a nutritionist, and I have followed his/her recommendations for more than 6 months.	0%	0

5.2 Participant Responses to Motivation to Participate

Motivation to Participate	Participant Response
LEARNING	
	● I'm wanting to learn more about *nutrition* ● I could learn more information about *nutrition*. ● Learn how to eat *healthier* ● There's always something to be learned. ● Learn more ● To learn *nutritional facts* ● Learn new things ● It interested me ● It sounded like something I wanted to be a part of
HEALTH AND NUTRITION	
	● New page in my life...not motivated to eat *healthy* like normal ● For *nutrition* ● To sustain a way of taking care of myself and eating. ● To receive some *healthy* tips ● I have *health issues* due to food choices and life.
FAMILY	
	● To better educate myself for my family

5.3 Baseline of Physical Activity by Participant

Do you currently engage in P.A.?	%	n=15
Yes	67%	10
No	33%	5
What kind of P.A.?		
Cardio	7%	1
Cleaning, walking	7%	1
Indoor	7%	1
N/A	27%	4
Squats and jogging	7%	1
Walking	33%	5
Walking and Stairs	7%	1
Walking at least 2 blocks a day	7%	1
For how long?		
More than 30 min. everyday	40%	6
Less than 30 min. everyday	20%	3
Do not engage in any P.A. at the moment	27%	4
More than 30 min. more than once per week	13%	2

Note. The table displays the baseline of the participant's Physical Activity.

Intervention Assessment

This pilot study aimed to evaluate the impact of a trauma-informed nutrition intervention on enhancing six human-food interfaces in 15 perinatal BAAWs experiencing SUD. The study collected pre- and post-intervention data on family food habits, feelings and thoughts, food and nourishment, individual food habits, food skills, and personal nutrition habits to determine the potential impact of the intervention.

Table 6 summarizes findings from the evaluation of the trauma-informed nutrition education curriculum and provides insights into its effectiveness in improving six human-food interfaces in perinatal BAAW experiencing SUD. After the intervention, the results indicated a significant improvement in food skills ($P= 0.04$). Although the results observed in family food habits ($P= 0.86$), thoughts and feelings ($P= 0.67$), and food and nourishment ($P= 0.31$) were not

significant, these scores showed a slightly positive trend. The results in individual food habits (*P= 0.30*) slightly decreased while personal nutrition habits (*P= 0.29*) slightly increased from the pre-test to the post-test. The results suggest that due to the short duration of the pilot study, food skills change results in a quicker change, and long-term behavior changes take longer to develop before a significant impact can be measured.

Table 6

P-value Results for Six Human-Food Interface

Human-Food Interfaces	M Pre-Test	M Post-Test	P-value
Family Food Habits	3.58	3.60	.86
Feelings and Thoughts	3.14	3.24	.67
Food and Nourishment	3.97	4.13	.31
Individual Food Habits	3.75	3.29	.30
Food Skills	3.02	3.57	.04
Personal Nutrition Habits	1.60	1.77	.29

Note. The table displays the P values from the study results.

Discussion

The significance of trauma-informed care for pregnant women in SUD programs has been emphasized (Ballard et al., 2022; Mosley & Lanning, 2020). Studies have also explored the traumatic effects of COVID-19 on this population (Hall et al., 2021). Community-based programs providing wraparound services are essential, yet research on perinatal BAAW in SUD programs remains limited (White, 2023), especially in SUD treatment and recovery settings. It considers the impact of trauma on eating habits and health outcomes, moving away from solely attributing issues to individual choices (Resnicow & McMaster, 2012; Wall-Bassett et al., 2016).

This pilot study introduces a trauma-informed nutrition intervention, a concept with scarce evidence, focusing on the interplay between trauma and food behavior (Resnicow & McMaster, 2012; Wall-Bassett et al., 2016). Evidence-based research is scarce on how trauma-

informed nutrition education approaches can impact individuals. The study can offer the first glimpse into how these approaches can be implemented with BAAW in SUD community programs and healthcare settings. Trauma-informed nutritional intervention can empower healthcare providers to assess their perinatal clients' needs (especially those BAAW with SUD), decide which interventions would benefit their clients, plan appropriate actions, administer the chosen intervention(s), and reassess post-implementation. Trauma-informed nutrition interventions have the potential to promote healthier eating habits and address health disparities by providing nutrition education to perinatal BAAW and their infants, ultimately enhancing their recovery journey and inspiring a more nutritious future (Wall-Bassett et al., 2017; Wiss et al., 2021).

Specifically, the formative data shows that organizational support in implementing innovative interventions is essential. Based on the open-ended and multiple-choice questions, the organization's leadership was open to adopting the intervention. However, there was no specific long-term plan for the implementation or sustainability of the intervention. The findings indicate that nutrition education was valuable to the organization's wraparound services for perinatal BAAW. The organization was well-equipped and had all the resources, training, and education to offer these nutrition interventions, but it lacked funding. As a result, it relied solely on partnerships within the community to provide nutrition education. Despite these obstacles, enthusiasm for offering such services was evident among organizational leadership. Most participants believed these services were achievable within the range of their offerings and would cater to the fundamental necessities that lead to better health and well-being of perinatal BAAW. The initial results can be shared with experts and providers in the SUD field to spread knowledge and gain support for implementing trauma-informed nutrition interventions. The pilot

study provides baseline evidence of these practices' effectiveness in nutrition targeting perinatal BAAW with SUD and the need for such trauma-informed nutrition interventions. However, it also underscores the need for further research to fully comprehend and address the unique needs of this specific demographic, emphasizing the importance of the study's findings. These practices are necessary and can enhance patients' health in these settings (Brach & Fraser, 2000; Hall, 2021; White, 2023).

The individual readiness assessment revealed that seven out of fifteen participants had not sought nutrition counseling, while six actively followed nutritional advice. This indicates a growing interest in nutrition education, driven by a desire to improve health knowledge for their families. The study's results indicate a positive attitude about physical activity engagement, with many participants actively engaging in various forms of physical exercise, predominantly walking. Research has shown that people who engage in physical activity are more likely to practice other healthy behaviors. (Haslam et al., 2009). This finding of a positive attitude towards healthy habits is a promising indication of progress towards a healthier lifestyle and should be encouraging for the audience.

After the intervention, participants showed significant improvement in their food skills, which include the ability to prepare and cook food safely and nutritiously. Although broader behavioral changes may take more time, these findings indicate that the intervention can enhance food-related behaviors over an extended period. Even though none of the results on thoughts and feelings, food nourishment, food habits, and personal nutrition habits were statistically significant, all scores showed a positive trend. It is worth noting that these human-food interfaces questioned participants' perceptions of behavior improvement. However, since the intervention only consisted of five discussions, it may not have been enough time to alter an individual's

perception of behavior improvement. Overall, the study highlights the need for trauma-informed nutrition interventions targeting perinatal BAAW in SUD programs (Wall-Bassett et al., 2016; White, 2023).

Strengths and Limitations of Study

A strength of the study was the partnership between the PI and the leadership of the local CBO. The strong collaboration played a crucial role in enabling the successful execution of the intervention. The leadership's support was instrumental in ensuring the project's smooth implementation. Intervention delivery was regarded as a crucial component of wraparound services to the participants. As a result, intervention adoption increased, and the project was carried out efficiently. Another strength was that the PI conducted the research sessions exclusively, guaranteeing strict adherence and fidelity to the research protocol. Lastly, the pilot study results indicated that the intervention is feasible for implementation on a smaller scale. However, further research is necessary to comprehensively evaluate the potential for its more comprehensive application.

Several limitations were encountered while conducting the pilot study. The primary issue was caused by the COVID-19 pandemic, which resulted in a delay in the implementation and timeline of the study. Due to COVID-19 safety concerns, the original plan was revised to a phone-based delivery method. This change was made to ensure the safety of participants.

The study faced challenges with recruitment and small sample sizes, ultimately impacting its power and ability to generalize results. Additionally, the study's time constraints, which involved pregnant women or new mothers as participants, led to data collection delays as some participants could not continue with the intervention due to delivery dates or completing it post-birth. These time constraints were unforeseen and led to challenges in maintaining participation

levels. Self-selection or volunteer bias is a limitation because participants self-selected to participate, making it hard to get a representative sample, which can skew the data. Another limitation to be considered in this study is response bias, particularly about the vulnerability of the population being examined. It is crucial to assess potential response bias due to a lack of trust or discomfort in sharing information. These factors significantly impact the validity of the data.

The study's feasibility is limited due to potential challenges in staff support, which includes coordinating session timings and ensuring participant availability. These factors highlight the need for careful consideration and planning before replicating the study. Despite encountering several challenges, the pilot study served as a valuable pilot and yielded significant evidence that can be utilized for future research initiatives. The findings contribute to the existing literature on health disparities in perinatal BAAW who are in SUD recovery and suggest that trauma-informed nutrition education could significantly enhance current practices in communities of color.

Conclusion

This pilot study assesses providing trauma-informed nutrition education interventions to perinatal BAAW with SUD and evaluates organizational readiness, participant food interaction behavior, and readiness for intervention effectiveness. Findings showed that the organization was prepared to adopt innovative interventions, with participants also showing readiness to engage, which indicated a positive sign for adapting to change. The findings indicated a significant improvement in food skills after the intervention. Other outcomes show a slight improvement in family food habits, feelings and thoughts, and food and nourishment, but they were not statistically significant. These findings validate the potential effectiveness of an innovative nutrition education intervention founded on trauma-informed practices. The intervention

facilitates meaningful discussions and encourages participants to contemplate various food-related subjects. The study findings support that evaluating a person's readiness is crucial before implementing an intervention aimed at encouraging behavior change.

The intervention was designed to help individuals develop healthy eating habits by understanding the relationship between nutrition and food. By reflecting on personal experiences, individuals can potentially change their behavior. Encouraging questions and exploring childhood food experiences can lead to a healing process. This innovative trauma-informed approach can potentially reform how service providers deliver nutrition education messages by considering the individual's needs and employing trauma-informed practices. The pilot study's results can guide further research to support pregnant and postpartum BAAW with SUD. Integrating trauma-informed practices into nutrition education can potentially help address health disparities in this population.

Reflection

The pilot study examined a trauma-informed nutrition intervention for perinatal BAAW in SUD treatment. This study provides initial information on a new trauma-informed nutrition intervention approach, highlighting the lack of evidence-based research on its impact. The study provides insight into integrating approaches with BAAW in SUD community programs and healthcare settings. Trauma-informed nutritional intervention allows healthcare providers to assess perinatal clients' needs, decide on interventions, plan actions, implement interventions, and reassess post-implementation. Nutrition interventions with trauma-informed approaches have the potential to encourage healthier eating habits and tackle health inequalities by providing nutrition education to perinatal BAAW and their infants, ultimately improving their journey of recovery (Wiss et al., 2021; Wall-Bassett et al., 2016). The findings contribute to the literature on

health disparities in perinatal BAAW in SUD recovery. This suggests that trauma-informed nutrition education could enhance current practices in communities of color.

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California Public Education Situational Analysis: Opportunities to Expand Nutrition Education

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Abstract

Introduction: The COVID-19 pandemic has transformed the school environment. Thus, an understanding of how nutrition education fits in the school environment is needed. Before developing or enhancing future nutrition education programs, it is crucial to understand the dynamics of the school and after-school environments to ensure successful implementation.

Areas covered: This perspective systematically identifies changes to the school environment that impact nutrition education and evaluates the current landscape to target new approaches. The project began with a comprehensive review of scientific literature, government reports, popular media, and related publications, and was subsequently supplemented by key informant interviews.

Expert opinion: The authors recommend aligning equitable, culturally relevant curricula, tools, and programs with future standards for social and emotional health. Partnerships with external educators and collaborations between state agencies, nonprofits, consultants, and college student interns could help achieve the long-term goal of integrating nutrition education in schools.

Keywords: Covid-19, education recovery, food and health literacy, nutrition education, social and emotional learning

California Public Education Situational Analysis: Opportunities to Expand Nutrition Education

Nutrition-related health conditions, such as type 2 diabetes and cardiovascular disease, present significant public health challenges in the United States and have a substantial impact on the growth, development, and health of children and adolescents (He et al., 2022; Mitchell et al., 2011). Over the last several decades, the prevalence of obesity has noticeably increased in young populations ("*Global Obesity Observatory," n.d.*). According to recent BMI data collected by the Centers for Disease Control and Prevention, 12.7% of 2- to 5-year-olds, 20.7% of 6- to 11-year-olds, and 22.2% of 12- to 19-year-olds were classified as obese (Stierman et al., 2021). Kanellopoulou et al.(2022) reported that excess body fat is associated with mental health concerns, such as depression, anxiety, and low self-esteem. Moreover, children with obesity are more likely to grow up to be adults with obesity and have related chronic health conditions, including cardiovascular disease, premature vascular aging, and type 2 diabetes (Abbasi et al., 2017; Simmonds et al., 2016).

One potential approach to improving health and dietary patterns in children and adolescents is through school nutrition education programs (Cotton et al., 2020). Educational efforts within the traditional classroom setting aimed at teaching students, families, and caregivers about the importance of nutrition have demonstrated positive health outcomes through cost-effective methods. Here, "traditional" refers to in-school education delivered during class time, as opposed to during out-of-school time or after-school programming. Research indicates that providing equitable resources and a comprehensive nutrition curriculum in schools can serve as an effective and affordable method for health promotion (Scherr et al., 2017). Integrating

nutrition education into the general curriculum has the potential to equip children and adolescents with the knowledge and skills needed for lifelong healthy dietary and lifestyle habits.

However, challenges arise due to the rapidly evolving school environment. Traditional nutrition education usually encompasses classroom education taught by various educators and tends to be resource-intensive, often requiring a partnering agency to provide materials, an educator, or both (Scherr et al., 2021). Teachers may be reluctant or unable to teach nutrition due to time constraints, knowledge of the subject matter, personal interest, or school support (Jones & Zidenberg-Cherr, 2015). Consequently, it can be challenging for schools to add nutrition education to the already demanding teaching requirements. The COVID-19 pandemic further exacerbated these challenges by introducing new obstacles to the learning environment and student population. Limited resources, staff shortages, and the shift to remote learning heightened the difficulties in implementing effective nutrition education.

In this perspective, the authors use California as a case study to (1) identify and address current challenges facing youth and educators, (2) highlight differences between the goals of government initiatives and the actual outcomes, and (3) propose strategies to effectively integrate nutrition education into the dynamic and evolving K-12 landscape.

Discussion

Current Challenges

Disruptions to the school environment due to the COVID-19 pandemic brought a new set of challenges to the school setting and exacerbated existing disparities in educational achievement (Haderlein et al., 2021). A sophisticated analysis of this achievement gap indicated that declines were greater in areas of low socio-economic status and that students' prior educational success was the most influential factor on academic achievement (*National*

Assessment of Educational Progress, 2022). Significantly related to this changing environment is the teacher shortage, with nuance as to where shortages are occurring: schools in wealthier areas tend to be experiencing far less turnover, further widening the achievement gap (Jones, 2022). As a result of the pandemic, an emphasis on social and emotional learning (SEL) also emerged as youth needed to learn in a new environment that required critical self-regulation tools that they may not have possessed (Kamei & Harriott, 2021). Despite returning to an in-person traditional learning environment, the effects of educational setbacks and remote learning on the development of students' self-regulation, social, and emotional skills must be acknowledged and addressed (Loades et al., 2020).

A two-part assessment of the school landscape was conducted to understand where the needs exist: a review of the literature and interviews with key stakeholders. Because of the prospective nature of the literature review, in addition to scientific literature, the types of documents reviewed included reports from government agencies and university research centers, California Assembly bills, popular press articles, California propositions, the Dairy Council of California evidence-based library, and other relevant publications. This initial step was taken to elucidate infrastructure that may be pertinent to the nutrition education landscape, and this process resulted in the identification of common themes. Ultimately, 133 documents were included in the literature review. Twenty-eight interviews were conducted with key stakeholders, including community partners, such as state-implementing agency leadership, school nutrition services, district administration, nonprofit directors, and other experts, to discuss their experiences and expertise related to the school environment and nutrition education, and gain a deeper understanding of the implications of the common themes.

Differences and Impacts

As a result of the literature review, nine key themes were identified as critical to schools: SEL, food and health literacy, Farm-to-School, equitable learning, body acceptance, schools as a hub for health care, universal school meals, education recovery, and youth career readiness. Stakeholder experiences and feedback demonstrated notable inconsistencies between the critical issues identified by California government officials and the school/classroom-level experiences. It is interesting to note that during interviews, only two themes were mentioned in high frequency, despite nine key themes being identified within the literature review: SEL and food and health literacy. Education recovery, while not explicitly mentioned, was encompassed by many of the nine key themes. As part of the California budget through 2023, funds were allocated to address select issues facing schools. Funds supported universal school meals, education recovery, and Farm-to-School efforts. However, stakeholder experiences and feedback demonstrated a need for more infrastructure to support much of the work. For example, California is one of eight states with universal free school meal policies following the COVID-19 pandemic, which provides meals to all students regardless of household income (Bylander et al., 2024). While most interviewees felt positive about universal school meals, they disclosed that increased meal service created staffing shortages. Several interviewees mentioned that universal school meals removed the stigma associated with free and reduced-price meals, reinforcing the priority for equity.

Additionally, a disconnect between findings from the review of the literature and interviews with key stakeholders emerged regarding education recovery efforts. This disconnect illuminates the difference between administrative priorities and the priorities of those implementing educational efforts, including nutrition services directors, educators, representatives from the California Department of Education, Supplemental Nutrition Assistance

Program-Education (SNAP-Ed) state implementing agency leadership, Farm-to-School, policy influencers, representatives from select nonprofits, and representatives from school-based health centers. Interviews highlighted challenges stemming from COVID-19, including deficiencies in teacher preparedness due to lack of time, training, administrative support, and SEL incorporation into curriculum. Although the literature review and key stakeholder interviews focused on changes within California, these issues are prevalent across states nationwide (*National Center for Education Statistics,* 2023).

Education Recovery

The COVID-19 pandemic resulted in setbacks for children within the classroom (Kuhfeld et al., 2022). From 2020 through 2022, reading and math scores from the National Assessment of Educational Progress demonstrated the largest average score declines in the past 20 years ("National Assessment of Educational Progress*", 2023*). In response, many schools have implemented after-school programs to provide academic assistance in a structured and safe environment to help close academic gaps and improve performance. The National Center for Education Statistics (NCES) reported that among public schools surveyed, 51% offered academic assistance programs, 28% provided academic enrichment, and 59% held school-related activities and clubs. However, 37% of schools reported limited staff as a barrier to offering these programs to all interested students (*National Center for Education Statistics,* 2023). As part of education recovery efforts, California created the *Expanded Learning Opportunities Program* to provide $4.6 billion for summer and after-school programs. However, discussion surrounding education recovery and career readiness demonstrated a disparity between administrator goals and actual implementation. While education recovery is underway, interviewees also mentioned

concerns related to the finite availability of funds. State funding was viewed as a temporary bandage to an ongoing issue with limited sustainability.

Social and Emotional Learning

During the shift to emergency remote instruction, parents/guardians nationwide reported challenges, including tantrums, under-stimulation, and anxiety associated with children having limited social interaction (Egan et al., 2021). In turn, administrators and teachers have encouraged the incorporation of SEL within the classroom. SEL supports students in gaining critical social development skills and emotional awareness essential for well-being (Ashdown & Bernard, 2012). The use of SEL has been documented to improve academics and reduce behavioral issues (Ho & Funk, 2018). State leaders are responsible for developing guidelines, requirements, and funding for SEL. Consequently, while some states lead the way in establishing comprehensive SEL standards, others have yet to implement any guidelines. Despite clear evidence of the benefits of SEL within the classroom, several states, including Montana, Oklahoma, and South Dakota, have yet to successfully implement SEL (*An act establishing requirements,* 2023; *The definition of a discriminatory practice*, 2023-2024; *Establish requirements for science,* 2023). As of 2022, 27 states have adopted K-12 SEL competencies (*SEL policy at the state level*, 2023). In a 2023-2024 study conducted by the NCES across all US states and in 116 public schools, 63% of schools reported using a formal curriculum for SEL skill development (*National Center for Education Statistics,* 2023). California has issued a requirement for the integration of more SEL and mental health curricula through the *Advance SEL in California Campaign* (Ramsey, 2020). The current study's stakeholder interviews demonstrated the importance of SEL while simultaneously discussing the need for professional development for teachers and partnerships with outside agencies to achieve these new

expectations. Similar challenges were observed among educators surveyed nationally in the NCES study. Among schools with a formal curriculum, 72% reported limitations and barriers related to time and mentioned that the program material only moderately impacted student outcomes (*National Center for Education Statistics,* 2023).

Further, 37% of schools without a formal SEL program attributed the lack of implementation to insufficient funding (*National Center for Education Statistics,* 2023). These challenges regarding time and budgetary constraints have also complicated the incorporation of nutrition education within traditional classroom learning. Interviewees noted the urgent need to address academic setbacks caused by the pandemic and the necessity of equipping students with essential social and emotional skills. As a result, nutrition education has been sidelined to prioritize education recovery and SEL.

Nutrition Integration

Despite the shift toward addressing pandemic-related academic and emotional recovery, integrating nutrition education into the classroom remains valuable in improving health and academic performance (Cotton et al., 2020; Wall et al., 2012). Adequate nutrition is fundamental to supporting mental and physical well-being, with research linking it to reduced stress and improved cognitive function (Bleiweiss-Sande, 2019; Muscaritoli, 2021). Similarly, improved dietary habits can significantly enhance cognitive abilities and support better academic performance (Bleiweiss-Sande, 2019), and nutrition education is one way to improve diet quality. Moreover, it should be emphasized that nutrition education within the classroom may serve as a powerful tool to teach and reinforce SEL for students, particularly through food and health literacy (*School Health Guidelines to Promote Healthy Eating and Physical Activity,* 2011). A growing body of literature, particularly since the onset of the pandemic, has

highlighted effective strategies for integrating SEL into nutrition education interventions. As schools continue to balance competing priorities, incorporating nutrition education can enhance student well-being and academic recovery, particularly when paired with universal meal programs and external partnerships (*School Health Guidelines to Promote Healthy Eating and Physical Activity,* 2011).

In combination with the universal meal program, nutrition education offers opportunities to reduce stigma, promote equity, and provide students with hands-on learning experiences that reinforce the importance of healthy eating habits (Murphy et al., 1998; *School Health Guidelines to Promote Healthy Eating and Physical Activity,* 2011). Within the structure of the universal meal plan, strategies such as taste tests, enhancing meal palatability, offering pre-sliced fruits, and implementing sharing tables can significantly improve students' access to healthier food options. However, research indicates that while introducing more nutritious foods at school may positively influence students' preferences, it is often insufficient to change their actual selection or consumption (Mumby et al., 2018). Thus, the universal meal plan must not be viewed as a standalone solution but as a complementary tool that enhances nutrition education through experimental learning opportunities.

In the last few decades, the most successful nutrition interventions have relied upon a holistic, comprehensive approach focused on the school and community environment with an emphasis on overall health. These interventions have been consistently associated with beneficial outcomes in knowledge, skills, and behaviors and have most often been conducted in partnership with external entities (Scherr et al., 2017). Programs offered through Leah's Pantry and Dairy Council of California have successfully transitioned their nutrition education materials to more dynamic, online learning models. By incorporating interactive tools, such as videos, educational

games, virtual field trips, and quizzes, these online programs engage students in learning in a way that is both informative and enjoyable (Scherr et al., 2021). These resources are designed for flexibility, allowing these programs to be easily integrated into the classroom setting as part of the standard curriculum or as supplementary learning activities. Teachers can assign these materials for completion at home, where students can engage with the content independently or collaboratively with their families. This approach enhances students' understanding of nutrition and encourages family involvement in reinforcing healthy eating habits outside the classroom (Rosales et al., 2023).

As many schools have expanded after-school programming to address the instructional time lost during the pandemic, integrating nutrition education into these extended hours offers a unique opportunity to provide students with structured lessons on healthy eating habits (*Afterschool Suppers,* 2021). Using this approach, schools can create a supportive learning environment that reinforces important health concepts beyond the time restrictions within the regular school day. Collaborations with external organizations can play a pivotal role in the success of after-school nutrition programs by providing specialized and culturally relevant education materials, access to trained educators, and innovative activities that go beyond what schools may have the capacity to deliver on their own. Collaboration with programs like “Fuel Up to Play” and “Eat. Learn. Play” promotes well-being by encouraging healthy eating and physical activity with a focus on overall health rather than weight. By adopting a pro-health approach, these initiatives reduce weight stigma and create an inclusive environment where students of all body types feel empowered to make healthy choices without judgment. By relying on outside experts to lead these initiatives, schools can alleviate the implementation burden on their teachers while ensuring high-quality instruction for students. Collaborating with food

literacy organizations like “FoodCorps” and the “Expanded Food and Nutrition Education Program” can provide valuable resources, including cooking demonstrations, interactive workshops, and access to locally sourced produce. These partnerships not only enrich the educational experience but also promote hands-on learning and healthier food choices (*Afterschool Suppers,* 2021).

Conclusion

The authors recognize that disparities between the current school environment and the goals for the future are largely due to a need for more sustainable infrastructure for nutrition education implementation. Integrating nutrition education into students' learning experiences, after-school programs, and the universal meal plan has the potential to significantly bolster healthy eating behaviors and enhance overall wellness. However, several limitations can hinder the effectiveness of these initiatives, including insufficient resources, funding challenges, staffing shortages, and difficulty finding qualified nutrition educators, which make it hard to maintain consistent, high-quality programming. Additionally, competing priorities, varying student participation rates, and a lack of parental involvement can diminish the overall impact. While nutrition education can promote healthier habits, translating these lessons into lasting behavioral change is difficult, especially when cultural differences and home environment factors come into play. In addition, future nutrition education programming should focus on creating relevant and equitable materials that support SEL. To assist schools in teaching food and health literacy as a pathway for SEL, it is recommended that new curricula, tools, and programs align with established standards and competencies for SEL. Additionally, materials should address food literacy learning experiences that highlight the health benefits of foods offered in school meal programs.

To successfully integrate nutrition education into the traditional classroom setting, challenges surrounding limited resources, time, and staffing could be mitigated through partnerships, such as collaborating with state agencies, commodity groups, universities and colleges, nonprofits, and consultants. These creative partnerships would enable schools to enhance nutrition education without overwhelming staff by leveraging the strengths of a third-party educator to achieve the long-term goal of implementing nutrition education in schools and informal learning settings.

Schools can also benefit from using the online and after-school programming resources these external partners provide. Administrators and staff should receive information about the wide range of external educators and agencies available for nutrition education implementation and the advantages associated with collaboration. Federal, state, and community nutrition organizations can provide culturally relevant, evidence-based, and cost-effective resources to students both in and out of the classroom, all while reducing barriers and setbacks associated with time, resources, professional development, and teacher hesitancy. By working together, schools can create opportunities for students to not only learn about nutrition but also develop essential SEL skills and lifelong healthy eating habits, while minimizing the burden on educators and resources (Rosales et al., 2023).

Reflection

While this perspective aimed to gather data from various regions across California, it is essential to recognize that the challenges faced in California may be different from those encountered in other states. Each state has unique demographic, socioeconomic, and educational landscapes that influence the implementation of SEL and nutrition education. Therefore, the findings of this perspective may not be completely generalizable. Further, the current policies regarding

education and SEL are still in the early stages of implementation. Longitudinal studies and ongoing assessments will be necessary to determine the true effectiveness of these initiatives and their long-term impact on student well-being and academic achievement.

Institutional Review Board Statement: A review of the procedures employed was deemed not to be human subjects research.

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