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Melissa D. Olfert

West Virginia University, melissa.olfert@mail.wvu.edu

Rachel A. Wattick

West Virginia University

Rebecca L. Hagedorn

West Virginia University

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Experiences of Multidisciplinary Health Professionals From a Culinary Medicine Cultural Immersion: Qualitative Analysis

Melissa D. Olfert*, Rachel A. Wattick, Rebecca L. Hagedorn

West Virginia University, Davis College of Agriculture, Natural Resources, and Design, Division of Animal and Nutritional Sciences, 4100 Agricultural Sciences Building, PO Box 6108, Morgantown, WV 26505-6108, USA

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Abstract

Purpose: Increasing Culinary Health Opportunities for Professionals (iCHOP) aimed to educate future and current health professionals on nutrition as medicine.

Methods: Two cohorts each participated in a 16-week course followed by a cultural immersion in Tuscany, Italy. The course took place online through West Virginia University. After the course, participants traveled to Tuscany, Italy for a 2-week cultural immersion. The online course covered culinary medicine, the Mediterranean Diet, and cultural comparisons. The cultural immersion consisted of hands-on activities including culinary lessons, food production and organic farm tours, and tastings of Mediterranean foods. Data was collected through personal journaling in order to capture participants' thoughts and experiences during the immersion. Journal entries were analyzed using NVIVO Software Version 12 in order to generate themes.

Results: Cohort 1 (n = 15) consisted of currently practicing health professionals and Cohort 2 (n = 14) consisted of aspiring health professionals. 20 themes and 5 subthemes were generated from 9 journal topics. Themes showed that participants had an increase and knowledge and self-efficacy and applied new information to personal and professional settings.

Conclusions: Cultural immersions can be an effective way to educate health professionals on nutrition as medicine and using journaling as a data collection method can effectively capture participants' experiences.

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Keywords: Culinary medicine; Nutrition education; Mediterranean diet; Immersion learning

1. Introduction

Chronic diseases affect the United States (US) at high rates, with 6 in 10 adults having a chronic disease, and 4 in 10 adults having two or more.¹ Chronic diseases such as heart disease, cancer, and diabetes, are the leading causes of deaths, disability, and \$3.5 trillion annual health care costs in the US.¹ Many of these diseases are nutrition and lifestyle-related, and would benefit from lifestyle modification counseling.^{2,3} While

* Corresponding author. Human Nutrition and Foods, Division of Animal and Nutritional Sciences, Davis College of Agriculture, Natural Resources, and Design, West Virginia University, G25 Agricultural Sciences Building, 1194 Evansdale Dr. Morgantown, WV 26506, USA. Fax: +(304) 293-2232.

E-mail addresses: Melissa.olfert@mail.wvu.edu (M.D. Olfert), rawattick@mix.wvu.edu (R.A. Wattick), rlhagedorn@mix.wvu.edu (R.L. Hagedorn).

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a registered dietitian (RD) is the best source for nutrition advice, all health professionals face situations in which counseling on nutrition related issues is necessary.⁴ Despite this, nutrition education is lacking in curricula for a variety of health disciplines. A 2017 study found that the mean number of hours spent teaching nutrition among 24 US dental schools was only 15.9, and 70% of nursing programs examined did not include a clinical nutrition component at all.⁵ In medical school, there is on average less than 20 h of nutrition education taught over 4 years of instruction.³ This has led to a consistent knowledge deficit among current and future health professionals, with multiple studies showing consistently low knowledge-based scores.^{6,7} In addition to low knowledge, health professionals have also displayed low confidence in their ability to counsel patients.^{8,9}

In recognition of this, there has been a call for an increase in the nutrition education of health professionals.^{2,5} However, there are multiple barriers to incorporating nutrition education into curriculum, including time and expertise.¹⁰ Finding innovative strategies that effectively teach nutrition to health professionals and students can enhance the knowledge and confidence of these individuals, such as online education.¹¹ Multidisciplinary education, in which health professionals and students from a variety of fields learn together, has been shown to increase their ability to counsel patients on nutrition.¹² A promoted approach is the evidence-based field of culinary medicine, which is the blend of the art of food and cooking with the science of medicine.^{13,14} Culinary medicine uses hands-on and experiential learning to teach nutrition and culinary skills to health professionals.¹⁴ The present study, iCHOP: Increasing Culinary Health Opportunities for Professionals, uses multiple innovative methods of online learning, multidisciplinary education, culinary medicine, and immersion learning to provide aspiring and currently practicing health professionals the opportunity to participate in hands-on, experiential learning on the use of nutrition as medicine.

The quantitative findings of this study are published elsewhere and showed that participants' knowledge and self-efficacy regarding nutrition in practice significantly increased.¹⁶ The present research aims to gain insight into the experiences of participants through the use of journaling to determine *how* the experience impacted their learning and self-efficacy. There are multiple reasons the method of journaling was chosen for this study. Extending the reach of qualitative data collection beyond the traditional focus group or

interview can extend the reach of knowledge building in situations where traditional qualitative data methods aren't feasible.¹⁷ In addition, research has shown that student learning increases when individuals are prompted to reflect upon their experiences in immersion learning.¹⁵ Further, reflection during experiences in different cultures is especially useful and can enhance the effectiveness of short-term immersions.¹⁸ The purpose of this study is to describe the experiences of individuals participating in this immersion experience through the use of personal journaling to determine how their learning and self-efficacy increased and to demonstrate that journaling can increase understanding of participant experience.

2. Materials and methods

The iCHOP program is described in detail elsewhere.¹⁶ Briefly, participants enrolled in a 16-week web-based course through West Virginia University and were taught the concepts of culinary medicine, the Mediterranean diet and culture, and comparisons between the United States and Mediterranean cultures, dietary patterns, health, and agricultural practices. Following the course, participants traveled to Tuscany, Italy for a 2-week cultural immersion filled with cooking lessons, food production facility tours, organic farm tours, and tastings of Mediterranean staples such as wine, cheese, and olive oil.

2.1. Cultural immersion

The cultural immersion consisted of 2 weeks of hands-on and experiential learning. Activities included multiple cooking lessons both in Tuscan countryside homes and culinary schools, organic farm tours, production facility tours (ancient grains, olive oil, cheese, wine, etc), and Mediterranean tastings (wine, cheese, olive oil, etc.) The itinerary was planned by individuals with years of expertise in curriculum and experiential learning development^{19–22} and content was delivered by cultural experts. Both cohorts experienced traditional Italian meal time, the Mediterranean lifestyle, and the culture of Tuscany.

2.2. Participants

The iCHOP study had two cohorts due to space limitations of the course and excursions in Tuscany. The first cohort consisted of currently practicing health professionals from a variety of disciplines. This cohort was part of the iCHOP: Mediterranean study and

participated from January 2018 to June 2018. The second cohort consisted of aspiring health professionals from a variety of health majors. This cohort was part of the iCHOP: Aspiring study and participated from January 2019 to June 2019. Participants were recruited through emails to association websites and West Virginia University's College of Health Sciences, College of Agriculture, Natural Resources, and Design, and College of Arts and Sciences. All applications were completed online and handled by West Virginia University's Office of Global Affairs. This study was conducted in accordance with the Declaration of Helsinki and the protocol was approved by the Institutional Review Board at West Virginia University (1709753932).

2.3. Data collection

After creation of the itinerary, researchers created a study journal that contained reflection prompts and questions related to each day's activities while abroad. The prompts and questions covered topics of daily reflection of activities, new or interesting things learned, comparisons to home, and personal and professional applications of what was experienced. For example, on the first day, individuals were asked "Which topics from the course did you find most interesting, and how do you hope to explore those more during your time in Tuscany?". An example question towards the middle of the immersion is "So far, we have had two group culinary lessons, making meals from scratch that we typically can buy premade. Would you use some of these techniques at home when we return?". Participants were assigned a research ID that was marked on each page of their journal. Participants were required to complete these journals daily and return them to researchers every couple of days for researchers to capture photos of the journals and upload them to a private drive.

2.4. Data analysis

Photos of the journals were downloaded onto password-protected computers to transcribe data into a spreadsheet for data analysis. Data was analyzed using thematic analysis with NVIVO Software Version 12.²³ Because of the similarities between journal prompts and responses between the two cohorts, all data was analyzed together. Two researchers independently coded the data by topic and decided on themes for each topic. A third researcher was brought in when disagreement occurred.

3. Results

A total of 15 individuals participated and met eligibility criteria for the iCHOP: Mediterranean study and 14 individuals participated in and met eligibility criteria for the iCHOP Aspiring study. The mean age for iCHOP Mediterranean was 43.8 ± 17.42 years and the mean age for iCHOP Aspiring was 21.9 ± 3.15 years. Tables 1 and 2 breakdown sample disciplines for each cohort.

A majority of participants were in the field of nutrition, with nursing being the second most common field. Most participants had future aspirations to pursue a career in nutrition, with the remainder intending to pursue a career in a variety of healthcare fields.

Overall, there were 9 main topics from the journals, with 20 themes and 5 subthemes generated from those topics (Table 3). The topics, themes, subthemes, and example quotes are described below.

3.1. Topic 1: aspirations for the trip

Prior to starting the itinerary as a group, participants were asked to describe what they were most looking forward to learning and experiencing over the next 2 weeks. Responses led to the development of one theme, *Learning New Information*, with three subthemes. The first subtheme was *Mediterranean Food*, as many participants expressed eagerness to try new foods and learn more about their origins. One participant from Cohort 2 stated, "I am most excited for all of the Mediterranean food during the next few days." Multiple participants wrote that they were excited to enhance their culinary knowledge and prepare Mediterranean foods, leading to the development of the second subtheme, *Culinary Skills*, with a participant

Table 1
Sample discipline breakdown for cohort 1.

Discipline	Frequency (N)	Percent (%)
Nutrition	5	33.4%
Dental (total)	3	20.0%
Dentist	2	13.3%
Dental Hygienist	1	6.7%
Respiratory Therapy	1	6.7%
Psychology	1	6.7%
Nursing	1	6.7%
Health Department IT	1	6.7%
Life Coach	1	6.7%
Physician (total)	2	13.3%
Family	1	6.7%
OBGYN	1	6.7%

A majority of participants worked in the nutrition field, with dentistry being the second most common field.

Table 2
Sample discipline breakdown for cohort 2.

Major	Frequency (N)	Percent (%)	Future Aspirations
Nutrition	5	35.7%	Registered Dietitian (4) Nutrition PhD (1)
Nursing	4	28.6%	NICU (1) Labor and Delivery (1) Master's in Public Health (1) Unsure (1)
Biology	2	14.3%	Neuroscientist/Neurosurgeon (1) Master's in Public Health- Health Policy (1)
Biomedical Engineering	1	7.1%	Medical School
Public Health-Health Policy	1	7.1%	Policymaker for Underserved Communities
Exercise Physiology	1	7.1%	Physician Assistant

Table 3
Topics, themes, and subthemes from qualitative analysis.

Topic	Description of Topic	Theme	Subtheme
Aspirations for the Trip	Participants were asked to list what they were most eager for on the immersion to starting the itinerary.	Learning New Information	Mediterranean Food Culinary Skills Mediterranean Lifestyle and Practices
Learning About Food Production	Participants experienced tours of production facilities and reflected on what they had learned.	Benefits of Mediterranean Foods Quality of Mediterranean Foods	
Application of Concepts	Participants were asked to reflect on what they learned and apply it to a counseling situation.	Moderation Pairing Ingredient Quality Discussing Health Benefits Small Changes	
Sustainable Agriculture and Organic Farming	Participants visited an organic farm to learn about sustainable agriculture and reflected on the advantages of these agricultural practices.	Benefits to Implementation at Home	
Culinary and Mealtime Experiences	Participants shared many meals together and experienced traditional Italian mealtime. They were prompted to reflect on these experiences.	Cheerful Atmosphere Conviviality	
New Skills	After completing a significant portion of the itinerary, participants were asked to reflect on how their experiences have impacted their skillset.	Counseling from Experience	Culinary Experience Self-Efficacy
Learning Mediterranean Principles	Participants were asked to reflect on what Mediterranean principles they have experienced or learned the most about thus far.	Respect for Ingredients Social Importance Natural Exercise	
Barriers to Implementation at Home	Participants were asked to think about what barriers there could be to advising patients on what they had learned.	Product Availability and Affordability History of Poor Diet Education	
Using Learned Material at Home	Participants were asked to reflect on how they will use the information and experiences they had in their personal and professional lives.	Sharing Experiences Teaching Others	

from Cohort 1 stating “I am really looking forward to cooking lessons. Bringing flavors together and helping others to combine eating more vegetables is exciting for me.” The final subtheme was *Mediterranean Lifestyle and Practices*, with many describing an

excitement to learn about the Mediterranean lifestyle overall, not just in regard to food. A participant from Cohort 1 wrote, “I hope to learn a slower, more well-rounded way of life and a more conscious way of collecting, preparing, and eating food.”

3.2. Topic 2: learning about food production

Participants experienced several tours of production facilities, including buffalo mozzarella, olive oil, wine, and ancient grains, and expressed new information they found interesting at each location. This led to the development of two themes. The first theme was *Benefits of Mediterranean Foods*. Participants were able to describe why Mediterranean food production leads to overall healthier products. After touring the buffalo mozzarella facility, a participant wrote “Today I learned so much about buffalo milk and cheese. Specifically, buffalos produce less milk than cows but provides higher quality fat and protein content.” Participants learned about the ancient method of producing wine and learned about why this is beneficial to health. A participant from Cohort 1 wrote, “[The winemaker] simply crushes the grapes and allows them to ferment instead of adding chemicals. This preserves antioxidants and tannins.” Many participants also expressed the benefits of the wine being sulfite free, with a participant from Cohort 2 writing, “The use of no sulfites helps preserve the antioxidants and nutrition of the grapes.” Touring of the Ancient Grain Mill was very informative for many participants, who noted that switching to ancient grains could be beneficial for a variety of diseases. One participant from Cohort 2 stated, “The increase in B vitamins and fiber in the ancient grain products help with diabetes, chronic pain, IBS [irritable bowel syndrome], heart disease, and obesity.” Another participant in Cohort 2 noted the benefits of ancient grains for gluten sensitivity, writing, “The main benefit of the switch is for those with gluten sensitivity because many people are mainly sensitive to gluten because modern, modified gluten is much heavier/stickier than natural gluten from ancient grains. This makes it easier to digest.” The second theme was *Quality of Mediterranean Foods*, with many participants noting the difference in quality from products such as extra-virgin olive oil (EVOO). One participant wrote, “Pure EVOO from the factory had a very grassy, earthy, fresh smell compared to the processed oil which seemed to not be very pure.” Participants noted how this quality impacted the flavor and aroma, with a participant from Cohort 1 writing, “Each oil had a fragrance that intensified with quality. Similarly, each oil had a spiciness that intensified with quality.”

3.3. Topic 3: application of concepts

Participants were asked to reflect on what they learned at each facility and apply it to a counseling

situation. Individuals expressed how they would counsel patients to consume the Mediterranean products they had learned about, leading to the development of 5 themes. The first theme was *Moderation*. Participants continually stressed the importance of consuming a variety of foods in a balanced manner and being conscious of wine and cheese consumption. When talking about cheese, one participant stated, “I think it is important to stress the concept of moderation. Too much of anything can be bad but it might not be necessary to cut out certain food groups of the diet entirely.” The second theme was *Pairing*, in which participants described how what the food is paired with makes a significant difference in its healthiness. One participant stated “I think you can truly enjoy a plate of mozzarella, tomatoes, and basil over a plate of nachos or a pepperoni roll. Make healthier pairings when eating cheese.” Pairing was a common topic with wine as well, with a participant from Cohort 2 writing, “Discuss pairing with some types of food and how it improves the experience of eating and not for intoxication.” The third theme was *Ingredient Quality*, with many participants writing about how they would advise a patient to purchase certain ingredients. A participant stated she felt that when advising on cheese consumption, it is “Important to assess quality/frequency. Fresh cheese [is] better than processed. Have fresh mozzarella and tomatoes rather than a grilled cheese with Kraft.” Another participant discussed how they would counsel on purchasing olive oil, writing “Make sure they buy olive oil cold-pressed. The polyphenols in the olive oil are anti-inflammatory and benefit in the reduction of heart disease. The non-virgin oils lose their potential benefit.” The fourth theme was *Discussing Health Benefits*. Participants described how they would tell patients the reasons they should consume these foods in a way that patients could easily understand. In regard to olive oil, a participant wrote, “Olive oil is a great fat alternative for multiple reasons-it is higher in minerals, has no trans-fat, and contains MUFAS (mono-unsaturated fatty acids), a great healthy fat option that can decrease risk of CVD.” When describing how she would discuss the benefits of red wine, a participant from Cohort 2 wrote, “I would explain that resveratrol can aid in lowering blood pressure. Wine has antioxidants that fight against free radicals in your body to prevent cell damage.” The fifth and final theme was *Small Changes*. Participants described how they would emphasize the importance of starting small when trying to make lifestyle changes, with a participant writing, “Start slow. Don't make all the changes at once and to the extreme. It's hard to maintain a lifestyle you're not

used to but by making small steps in the right direction you can change your lifestyle over time.”

3.4. Topic 4: sustainable agriculture and organic farming

Part of the itinerary was visiting an organic farm and learning about sustainable agriculture. Participants were asked to reflect on the advantages of sustainable agriculture and related it to West Virginia. This led to one theme of *Benefits to Implementation at Home*. Many participants described the benefits to health, with one participant stating “I think that sustainable farming would be quite beneficial to the state. Not only would sustainable farming encourage healthy eating, it would make vegetables, fruits, meats, and herbs more accessible.” Participants also discussed potential benefits to the economy, especially in the low socioeconomic region that they work in. A participant from Cohort 2 stated “I think sustainable agriculture could benefit [West Virginia] by bringing more jobs instead of depending on sources from other states.” A few participants noted the environmental benefits, with a participant stating that sustainable agriculture could “Help the land, which has been depleted and negatively impacted for decades by misuse of natural resources.”

3.5. Topic 5: culinary and mealtime experiences

Throughout the immersion, participants consumed many meals together and experienced traditional Italian mealtime and were prompted to reflect on the experience and how it might compare to home. This led to the development of two themes. The first theme was *Cheerful Atmosphere*, with many participants noting that everyone was happy and bonding with one another [during mealtime]. A participant reflected on the experience as having “Lots of laughter during cooking-people enjoyed being together and learning.” The second theme was *Conviviality*, which is the term used to describe sharing a meal together in the Mediterranean lifestyle. This was a concept taught in the class pre-departure, but the immersion allowed participants to actually experience it multiple times. Towards the beginning of the trip and after a couple of group meals, one participant stated “I feel like I am starting to understand the concept of ‘conviviality of mealtime’.”

3.6. Topic 6: new skills

After participating in a variety of activities, participants were asked to reflect on how these experiences

have impacted their skillset. Participants identified areas in which they had improved and how they could use these skills at home. This led to one theme with 2 subthemes. The first theme was *Counseling from Experience*, in which participants described the benefits of experiencing the lifestyle changes that they would tell patients to make. A subtheme of this was *Culinary Experience*, with many participants described the benefits of having cooking experience. One participant from Cohort 1 wrote, “Understanding the time and effort that goes into cooking is important before asking clients to make meals each day. However, making large meals for leftovers and other options is helpful for busy individuals.” Participants felt that their experiences could help them give realistic advice to patients. A participant in Cohort 2 wrote, “I think having hands-on experience allows you to provide a more realistic counseling perspective to patients” and another wrote “I definitely think having more culinary knowledge and experience can help elevate a counseling session. Being able to talk about something more sincerely and passionately makes it more believable.” The second subtheme was *Self-Efficacy*, both in terms of increasing it in the patients they counsel and in their personal lives. Participants discussed how they would relate the simple techniques they learned to patients to make patients open to cooking more often. A participant from Cohort 1 wrote, “We made a huge meal from scratch and I will be able to tell my patients that ‘simple’ cooking is key.” Another participant wrote about their own increase in self-efficacy, writing, “Cooking is like skiing or biking. The way to learn is to do. The repeated experiences offer that opportunity.”

3.7. Topic 7: learning Mediterranean Principles

Participants were asked to reflect on what Mediterranean Principles they have experienced or learned the most about during their time in Italy. This led to the development of 3 themes. The first theme was *Respect for Ingredients*. Participants noted how using the entire part of an ingredient was common practice in Tuscany, and how this could be useful at home. One participant stated, “I learned ways to use the whole part of an ingredient. This will be helpful to counsel patients on ways to not waste and therefore save money.” They also reflected on how individuals in Tuscany used the local foods they had access to. A participant from Cohort 2 wrote, “I learned about using the most of what you have access to. This will be beneficial to patients/clients because most won’t

have the opportunity to obtain a lot of the ingredients recommended/deemed to be healthy.” Participants also noted how the ingredient quality positively impacts the land, with a participant writing “Respect for the land and all things natural so choosing foods with a small number of ingredients that are not processed.” The second theme was *Social Importance*. Participants described how they noticed the strong emphasis on friends and family throughout everything they experienced in Tuscany. A participant wrote, “Importance of family and social connectedness. High value on family, staying close, and the community.” The third theme was *Natural Exercise*, with many participants noting how they had walked every day to get places rather than doing intense physical activity for short periods of time like at home. A participant wrote, “Incorporating regular ‘physical activity’. Walking to and from places when possible instead of resorting to cars.”

3.8. Topic 8: barriers to implementing at home

While participants were exposed to the Mediterranean lifestyle through many activities, a key goal of the program was how to apply what they learned at home. They were asked to think about what barriers there could be to advising patients on what they had learned. This led to the development of 3 themes. The first theme was *Product Availability and Affordability*. Participants described how where they are from, the healthy foods aren't as accessible as they are in Tuscany. One participant stated “There is a huge lack of access in [West Virginia]. If people, can't get fruit and vegetables, there is not a good chance they'll have access to ancient grains.” Another participant noted the price barrier, writing, “Many patients-especially those less fortunate are on limited budgets or limited access to food in WV so can't afford to buy.” The second theme was *History of Poor Diet*. A few participants discussed how their region has a history of cheap and easy foods and recipes that have been handed down between families, thus creating a culture of unhealthy foods. One participant wrote, “Many recipes are handed down generation to generation. Unfortunately, they are not based on fresh/healthy ingredients.” The final theme was *Education*, with participants arguing that educating residents can help to increase healthy habits. One participant wrote, “My observation is that most West Virginians like very fluffy bread that doesn't have much nutrition in it. I think if done well-healthy, nutritious wheat can be educated to the point that we have healthy options.”

3.9. Topic 9: using learned material at home

Participants were asked to reflect on how they will use the information and experiences they had at home, both personally and professionally. This led to two themes. The first theme was *Sharing Experiences*, in which many participants reflected on how they enjoyed their time in Tuscany and would like to continue the practices at home with others. A participant from Cohort 2 wrote, “Spend time with family and loves ones at meal time.” Participants described sharing experiences both personally and professionally, with a participant writing “In my family community, I will involve all of them in the prep work and evolve into a slower pace of eating with new ingredients. In my work community, I will bring items I have made at home that are unique to try and start conversation around this to encourage others.” The second theme was *Teaching Others*, in which participants described ways in which they could show others what they had learned. A participant wrote “We, as nutrition professionals, should provide education and hands-on learning to improve these skills. Particularly in [West Virginia], some education classes could be beneficial.”

4. Discussion

This study aimed to describe the experiences of individuals participating in a novel approach to educating health professionals on nutrition as medicine through the use of personal journaling as a data collection method. The use of immersion learning as a method to increase cultural competency of health professionals has been studied over the past decade.^{24–26} However, these immersion experiences often did not include a reflection component or data collection on the experiences of students.^{24–26} This method of data collection was used due to previous research showing the importance of student reflection during learning experiences,¹⁵ the need for innovative qualitative data collection beyond traditional methods,¹⁷ and the usefulness of personal reflection in enhancing the impact of short-term immersions.¹⁸ Using this method of journaling, participants were able to reflect on their experiences and evaluate how the information they learned could be applied in personal and professional settings. Results showed that participants learned a great deal of new information on a variety of topics, such as olive oil and ancient grain production, health benefits of Mediterranean products, and sustainable and organic farming. Participants described how they would apply this information to their personal and professional lives

through ways in which they would counsel patients, including how they would describe health benefits and how they would tell patients to incorporate these changes. In addition, participants identified barriers to implementing these changes in West Virginia, which are important factors to consider when counseling on behavior change. Importantly, participants described an increase in their self-efficacy in regard to counseling from experience and in their culinary skills, which they can translate to patients.

There is a significant gap in the necessary nutrition knowledge and skills required for health professionals to effectively counsel patients on lifestyle changes.²⁷ This has been recognized by current and future healthcare professionals, with many expressing a knowledge deficit in this area, and displaying a knowledge deficit through consistently low knowledge-based scores in studies.^{27–32} Because of this, there is a call for innovative ways of education health professionals on nutrition.²⁷ In particular, interdisciplinary and team-based education is recommended to synthesize real-world applications of how nutrition care is implemented.²⁷ The use of hands-on cooking and nutrition education is recommended in order to improve readiness of future and current health professionals to counsel patients on nutrition behavior change.²⁷ Further, models that increase the healthy habits of practitioners are encouraged, as those who personally practice healthy behaviors are more likely to effectively counsel others on healthy habits.³³ The iCHOP program incorporated each of these suggestions into the curriculum through the use of multidisciplinary cohorts, hands-on and experiential learning, and encouragement of participants to implement the dietary and lifestyle changes in their own lives. Through qualitative analysis, it was determined that participants were able to increase their knowledge of the Mediterranean diet and lifestyle, how to counsel patients on it, barriers to implementation, and how it affected them personally.

There are several limitations to this study. First, the sample size was relatively small due to space limitations of the cultural immersion. Second, rather than high saturation in one discipline, there were a few participants from a variety of disciplines. The researchers aimed for this multidisciplinary approach because research has shown this to be effective when educating on nutrition.^{13,27} Third, there is currently no long-term follow up of all participants to determine if these experiences and their new knowledge have been implemented personally or professionally. Fourth, there was no comparison group in this study, which

limits our ability to determine the unique impact of the immersion. Finally, these results are from participants residing in West Virginia and cannot be generalized to other populations. Future work will conduct long-term follow up of participants to determine changes in personal and professional practice.

5. Implications for research and practice

The use of personal journaling as a data collection method during a hands-on, experiential learning cultural immersion showed to be effective in capturing participant experiences and thoughts throughout the duration of the immersion. Participants reflected on information they learned and how they would apply it professionally and personally, and described an increase in knowledge and self-efficacy from their experiences. Future work can continue to find ways to use personal journaling as a method of data collection in novel experiential learning approaches.

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