Master of Public Health

Integrative Learning Experience Report

Systems Approaches for Healthy Communities: a web-based professional development program

by

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MASTER OF PUBLIC HEALTH

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Summary

This integrated learning experience report provides a detailed description of the experience at the University of Minnesota (UMN) Extension research and outreach, located in St. Paul, Minnesota. The UMN Extension research and outreach is organized broadly into four centers: Agriculture, Food and Natural Resources; Community Vitality; Family Development; and Youth Development. My experience took place in the extension center of Family Development. This center teaches families and those who serve families to make informed decisions leading to greater health, resilience, and well-being.

The primary focus of this experience was to assist in evaluating the data from the Systems Approaches for Healthy Communities (SAHC) web-based professional development program and to create a marketing plan for the program. The products produced through my time working on the SAHC project include the analysis of the SAHC data, a manuscript written for a peer reviewed journal, and a marketing plan developed for the SAHC training course.

The experience with UMN Extension deepened my understanding of public health research and program evaluation and the importance of this work in forming public health evidence and research. I was also able to experience quality professional development provided to the UMN staff. Working directly with the program leader for Health and Nutrition in the Family Development Extension Center, Abby Gold, PhD, MPH, RDN, along with the SAHC team provided hands-on experience in program research and evaluation, which, when combined with the public health nutrition coursework at Kansas State University, has well prepared me by expanding my knowledge and understanding within the field of public health.

Subject Keywords: spectrum of prevention, policy, systems and environmental approaches, professional development, online training

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Chapter 1 - Literature Review

There are many factors within an individual's social, physical, and economic environments that influence their choices about their health (Sims & Aboelata, 2019). A systems approach is a way to address the multiple interrelationships that shape an individual's health decisions. Many federal level institutions and organizations as well as states, communities, and public health professionals use systems thinking to examine sectors of influence and focus on social and physical spaces where individuals live, learn, work, and play for public health interventions (Plough, 2015; Sallis et al., 2006; Sims & Aboelata, 2019). In recent years, both the Expanded Food and Nutrition Education Program (EFNEP) and Supplemental Nutrition Assistance Program-Education (SNAP-Ed) Program started requiring the use of comprehensive interventions to address multiple levels of the Social Ecological Model along with direct education to reach the target audience (United States Department of Agriculture, 2020). Policy, Systems and Environmental (PSE) change approaches seek to go beyond increasing individual knowledge and skills and are designed to promote healthy behaviors by making healthy choices the easy and preferred choice. The use of models and theories that focus on psychological and social influences on behavior such as the Social-Ecological Model and Spectrum of Prevention can be effective in promoting healthy choices and behaviors. These models can help public health professionals look at people's interactions with their physical and sociocultural environments to examine the root causes of health-related behaviors (Sallis et al., 2006).

The Social-Ecological Model (SEM) emphasizes how intrapersonal, social, cultural environments influence individual's health behaviors (Hill et al., 2020; Shoemaker, 2010). This model can be found in Figure 1.1.

https://www.cdc.gov/violenceprevention/about/social-ecologicalmodel.html

Figure 1.1 ***Social-Ecological Model***

According to the SNAP-Ed Guidance, “multi-level interventions generally are thought of as having three or more levels of influence” (United States Department of Agriculture, 2020).

The Spectrum of Prevention is comprised of six levels, and, not unlike the Social-Ecological Model, begins with the individual. Activities at any level of the spectrum have the potential to support each other and have been applied to many health problems to promote health and safety (Cohen & Swift, 1999). The spectrum is a framework that emphasizes the need for a broad range of approaches to address complex public health issues. The Spectrum of Prevention can help practitioners and policy leaders move beyond individual educational approaches to a broad and multi-level systems approach to achieve better health outcomes (Cohen & Swift, 1999). This framework can be found in Figure 1.2.

https://www.preventioninstitute.org/tools/spectrum-prevention-0

Figure 1.2 ***Spectrum of Prevention***

Individuals are influenced and impacted by the environments that surround them and understanding ways to address and improve population health is vital. The Spectrum of Prevention “shifts attention from individually focused health education to a systems approach” (Cohen & Swift, 1999).

In the new shift in programmatic focus to PSE efforts by federal programs such as SNAP-Ed and EFNEP, it was found that many practitioners lack the knowledge or skills needed to incorporate PSE approaches into their efforts, and there is a clear need for more training centered around PSE (Hill et al., 2020; Pope et al., 2020; Stark et al., 2011).

My Applied Practice Experience was completed at the University of Minnesota (UMN) Extension Program in St Paul, Minnesota. UMN Extension research and outreach is organized broadly into four centers: Agriculture, Food and Natural Resources; Community Vitality; Family

Development; and Youth Development. Each center has teams of scientists and educators who work in statewide, regional, and county organizations to share reliable, research-based education on topics affecting Minnesota's families and communities. UMN Extension is in all 89 counties of Minnesota. My time with UMN Extension was spent working in the extension center of Family Development. This center teaches families and those who serve families to make informed decisions leading to greater health, resilience, and well-being (University of Minnesota Extension, 2020). My preceptor and mentor, Abby Gold, PhD, MPH, RD is the extension program leader for Health and Nutrition within the center for Family Development. Abby supervises 10 Extension Educators, who are master's level faculty, within the Health and Nutrition extension program. The SNAP-Ed program, UMN extension (one of eight SNAP-Ed implementing agencies in Minnesota) and EFNEP program are housed in the center of Family Development. Both programs provide nutrition education – teaching skills to make healthy food choices and achieve healthy lifestyle choices – to low-income individuals and families.

Chapter 2 - Learning Objectives and Project Description

My Applied Practice Experience (APE) was dedicated to the Systems Approaches for Healthy Communities (SAHC) program, a web-based professional training course that was first targeted to UMN community-based SNAP-Ed nutrition education staff within UMN extension's Health and Nutrition Program to increase their comfort, ability, and knowledge in implementing PSE. In October 2017, the training was launched nation-wide and offered to organizations, departments, networks, coalitions, and non-profit agencies engaged in health education, health promotion, or PSE change approaches taken together by an organization. The course components include online modules, a toolkit, and an internal coaching process. The online modules are self-paced and provide the primary content for the course, Module 1; Frameworks for Healthy Communities, Module 2: Taking a Systems Approach, Module 3: Engaging the Community, Module 4: Knowing your Community, Module 5: Putting It All Together. Modules average approximately 60 minutes each, with the material presented through activities, examples, stories, reflection questions, and interactive exercises. The modules can be completed individually or in groups and are intended to be conducted over a flexible timeframe of approximately 10 to 12 weeks.

An essential component of the program is the emphasis of coaching staff as they participate in the program. The coaching component uses an organization's internal team leaders to support participants as they reflect on the information provided in the modules and consider ways to apply it to their daily work. Coaches met with participants either individually or in groups. SAHC utilized both the Spectrum of Prevention and the Social Ecological Model as guiding frameworks. To better address the complexity of the social, organizational, and political structures of public health issues, the training drew on the practice of systems thinking. (Leischow & Milstein, 2006).

One of the main of objectives of the experience and one of the reasons I was interested in working with UMN extension was it gave me the opportunity to grow in an area that I believed I needed more development, the ability to apply statistical theory, methods, and techniques to public health research data. In the focused summative outputs for this experience, I was able to use the skills and enhanced my knowledge that I acquired through the academic courses, especially those of Biostatistics, Epidemiology and Nutritional Epidemiology. The learning objectives for my experience included:

- Gain an understanding of the SAHC program and participate in the five learning modules.
- Understand the theories used in the development of the SAHC training program.
- Build competence in evaluation, categorization, and interpretation of qualitative data.
- Communicate findings of the analyzed data.
- Develop a marketing plan for SAHC that outlines goals and strategies for promotion of the training.

It was very important at the beginning of this experience to understand the structure of UMN extension, which Abby introduced me to. Although I am currently employed with Kansas State University Research and Extension (KSRE), I quickly found out that not all extension programs are structured the same, but there are many similarities. Both universities are 1862 Land-Grant Universities and stand true to the extension mission– taking knowledge gained through research and education and bringing it into action by delivering it to the people across their states for positive change (National Institute of Food And Agriculture, 2020). There is a complexity in the structure of extension but by possessing the basic understanding of the extension system at KSU, I was able to decipher the similarities and differences from each of the programs. This in turn helped me identify how work flows through the UMN extension system and provided me with a better perspective and understanding of how my current work in extension fits into Kansas State's extension system. It also allowed me to identify areas that are successful and those that could be improved upon by observing an outside system.

One of the first objectives of the project was to familiarize myself with the SAHC modules and training. It was important to gain an understanding of the training before looking at the survey data. I completed the five modules and participated in all activities within each of the modules. After the completion of the course, I understood how the course flowed and the expectations of engagement from participants throughout the course. Participating in the training also increased my knowledge of systems approaches, PSE and the Spectrum of Prevention. It provided me with greater clarity on how to communicate the importance of systems work in public health and the need for systems approach training for community-based SNAP-Ed nutrition education staff I oversee, in my current position as State SNAP-Ed coordinator in Kansas, to help them better understand the importance of moving beyond individual education and better prepared to support, engage, and implement community PSE change in their communities.

During my experience I was able to work with the SAHC team comprised of Stephanie Heim, MPH, RDN; Lauren Bohen, MPH; Emily Belcher, Ph.D. and Aysegul (Aysha) Baltaci, MS, UMN doctoral student on this project. Upon meeting the team, I was provided access to the survey used to evaluate the program and all modules. The SAHC program had a large amount of data that needed to be examined and the team had started to theme and code part of the qualitative data. My responsibility was to help analyze and interpret the quantitative data from the overall course and module surveys. The quantitative data came from the 973 participants who completed pre-, modules 1-5, and post-surveys. The first process of analyzing these data started by working with Aysha to determine how best to manage duplicate data within the data set. Once the data were cleaned and a codebook established, I was able to start examining the data to determine what data sets and appropriate statistical data models could be used to identify the relations among data variables related to my research questions:

1. Do SAHC participants report that after taking the course they are prepared to support, engage, and implement community PSE change?

2. Do SAHC participants report that after taking the course they are comfortable supporting, engaging, and implementing community PSE change?

Aysha used the statistical software R v 3.6.1 (R Core Team, 2019) to perform statistical analysis that we mutually agreed upon. For the descriptive analyses, we used frequencies and percentages to describe the demographic characteristics, after each module, and overall course evaluations. To compare mean changes between pre- and post- of the overall course and modules the Wilcoxon signed-rank test was conducted. The Wilcoxon signed-rank test was chosen because the data was ordinal, paired and not normally distributed. In using the Wilcoxon signed rank test we were able to examine whether there were significant changes in participants' comfort and ability to identify and describe key concepts and terminology from the modules. The McNemar test was chosen to compare what proportion of participants changed from one group to another (i.e., disagree to agree). The McNemar test is used to analyze pre-, post paired data with related dichotomous variables and data that is not normally distributed. Response options for the modules and overall pre- post- surveys were dichotomized into two categories: [strongly disagree + disagree] and [strongly agree +agree]. McNemar Chi-Square tests were then conducted, using these dichotomized options to examine whether participants' comfort, knowledge and understanding of key concepts and terminology improved after the individual modules and overall course.

The main product of this experience was to communicate the analysis and interpretation of the evaluation results from the SAHC training course by writing the method, results, and discussion sections of a manuscript to be submitted to a peer-reviewed journal. Additionally, I was also able to write the introduction and background for the manuscript. The full manuscript can be found in Appendix 1. It was important to the team that I develop an authorship agreement given that I was contributing the manuscript. The overall purpose of the authorship agreement is to provide an easy and clear way to negotiate and determine authorship and to clarify the expected roles of each contributor. This involves discussing who will do or has done certain tasks so it can be determined who and how those contributors would be listed on the article. Part of the process of writing a manuscript is understanding which publication will reach the intended audience. I researched different publications to find the most appropriate journal to submit the SAHC manuscript to. I found the *Journal of Pedagogy in Health Promotion*, *Journal of Health Promotion Practice*, and *Journal of Nutrition Education and Behavior* to be the top three publications most appropriate for the SAHC manuscript. After reexamining the manuscript categories, submission requirements and talking with my preceptor, it was agreed that the *Journal of Health Promotion Practice* would be the journal the team would submit the manuscript to in the summer of 2021. Contributing to peer reviewed publications is important to the public health field, as it is how the public health field forms a research base which in turn helps guide practice decisions and assures delivery of the desired outcomes of interventions and education.

The other product of this experience was the development of a marketing plan for the SAHC web-based professional training course. This marketing plan can be found in Appendix 2. I used the Center for Disease Control and Prevention's Guide to Promoting Professional Development as starting point in the development of the marketing plan, which provide insight on how to effectively promote professional development opportunities. I met with members of the SAHC team to discuss past marketing strategies (2017, 2018), future goals and desired outcomes. The plan identified key stakeholders targeted, the channel of communication most appropriate for the audience and action steps for the SAHC team to carry out. As Kansas SNAP-Ed coordinator, I was able to leverage my connections within the SNAP-Ed implementing agency community through my relationships and committee appointments to provide specific contacts and direct routes of communication to those key stakeholders. I was not only able to develop the marketing plan but help the UMN team start implementing the plan. As part of the marketing plan, one channel of communication identified was presenting the SAHC data at national conferences that convene key stakeholders, and the action step is to submit proposals

to those conferences. Using the manuscript I wrote, the SAHC team developed and submitted a proposal abstract to the American Public Health Association annual conference. If accepted, I plan to help the team define the SAHC's course components, describe the importance of integrating systems approaches with educational strategies and summarize the program evaluation results and effectiveness of the course as part of our session.

While at UMN Extension, I had the opportunity to join their Friday webinar series of professional development trainings. The four trainings I was able to attend were Creating Welcoming Communities: A Toolkit to Support Immigrants, Refugees and BIPOC; A Look into the 2020-2025 Dietary Guidelines; Adapting Healthy Cents for Zoom; and UMN: Building a Partnership System.

Welcoming Communities: A Toolkit to Support Immigrants, Refugees and BIPOC is an extension resource to help communities engage with immigrants, refugees and Black, Indigenous and people of color (BIPOC) in ways that are welcoming and inclusive. This webinar helped me expand on what I learned about the nature, causes and consequences of social, racial, ethnicity and gender inequality and its effect on health outcomes received in the coursework SOCIO 541 Wealth, Power and Privilege, SOCIO 570 Race and Ethnic Relations in the U.S. and CNRES 750 Lifespan Crisis.

A Look into the 2020-2025 Dietary Guidelines*,* was provided by UMN's Jamie Stang, PhD, MPH, RD, who was member of Dietary Guidelines Advisory Committee. Jamie provided an inside look at the process of developing the Dietary Guidelines. The committee looks at scientific evidence on a variety of nutrition topics and makes recommendations to the United States Department of Agriculture (USDA) and Health and Human Sciences (HHS) who then develop the guidelines. Public health professionals often hear about the dietary guidelines and what is new or changed from the last version but it very interesting to hear the inside perspective of the process. My key takeaways from this presentation were 1. all positions on the committee are volunteer 2. development of the guidelines starts almost immediately when the newest version is released and 3. even though there is strong scientific evidence for a particular recommendation, not all recommendations are used by USDA and HHS or reflected in the guidance.

Adapting Healthy Cents for Zoom. Healthy Cents is a curriculum first created by the University of Maryland Extension which combines nutrition education and food resource management principles to encourage limited resource families to make healthy food choices on a limited budget. During COVID the UMN SNAP-Ed staff adapted the curriculum for virtual learning by placing the lessons on Canvas, a web-based learning management system, for staff

to access. Staff then were able to teach lessons synchronously to SNAP-Ed participants. The class was structured into six with the first lesson being and introduction to Zoom and virtual learning and logistics and the remaining five were the core content lessons.

The last webinar I was able to attend was UMN: Building a Partnership System. Renee Pardello and Cari Michaels, UMN faculty, published an article exploring how UMN Extension professionals work toward a partnership system, and the organizational and related factors they believe support or restrict these efforts. They shared the findings of the study, including results from survey respondents within the Center for Family Development and the Regional Sustainable Development Partnership. This webinar was very useful for me in my current role and helped me to begin thinking about the need to examine the partnership system within our organization and program.

Being able to attend these trainings was a valuable experience as it provided me the opportunity to broaden my knowledge in areas that are not only are important to public health but to me in my current role. I can appreciate the time, commitment, and hard work that goes in to providing meaningful and quality professional development to staff and saw the value of bringing staff together on a regular basis to deepen their understanding of programming opportunities, resources, and guidance important to their day-to-day work.

Chapter 3 - Results

The evaluation of SAHC aimed to determine if, after the training, SAHC participants were prepared to support, engage, and implement community PSE change and if SAHC participants were comfortable supporting, engaging, and implementing community PSE change.

The course pre- and post- survey questions addressed the participant's comfort level with PSE, community and partner engagement, and the SEM. The response options to the pre- and post-survey items were strongly disagree, disagree, agree, and strongly agree. The pre-survey also included demographic characteristic questions. The post-survey also included items related to the ease of use and accessibility of the course. Response options for these survey items included: excellent, good, fair, poor. Each individual module began with a brief open-ended reflection question exploring how participant's thinking had changed as a result of the prior module (completed at the beginning of modules 2-5). The module surveys used a retrospective pretest model, which asked participants to report their agreement with a statement specific to that module's objectives after participating in the module and then retrospectively report their agreement before participating in the modules. Response options for all module surveys were, strongly disagree, disagree, agree, and strongly agree. Because the concepts taught throughout the course were complex and gradually clarified during the course, the retrospective pretest module was used to gauge change (Plough, 2015; Sims & Aboelata, 2019; United States Department Agriculture, 2020).

A total of 2470 participants completed at least one part of the survey (pre-, module 1-5, and/or post-survey), with 973 (39.4%) participants who completed pre-, modules 1-5, and post-tests. Change between pre-and post- for the overall course found participants showed a significant ($P < 0.05$) positive change in their comfort and ability in using the term PSE change, 48% ($p < 0.001$); explaining the terms PSE change, 58% ($p < 0.001$); using the Social-Ecological Model, 64% ($p < 0.001$); explaining the Social-Ecological Model, 65% ($p < 0.001$); prepared to engage with communities and partners to implement and support PSE, 41% ($p < 0.001$) and assessing current needs and conditions in communities 50% ($p < 0.001$). After completing each module, the results showed significant ($P < 0.05$) positive change in knowledge and understanding of key concepts and terminology in each module. Change between pre- and post- for Module 1; Frameworks for Healthy Communities showed participants significant ($P < 0.05$) positive change in their ability to explain how systems impact whether making healthy choices is easy or difficult, (64%); define the terms PSE change (60%); describe the Social-Ecological Model (67%); describe how multi-level approaches to health promotion can have a

greater impact than direct education alone (65%). Change between pre- and post- for Module 2: Taking a Systems Approach showed participants significant ($P < 0.05$) positive change in their ability to identify interventions to take at each level of the Spectrum of Prevention (73%); recognize which level on the Spectrum of Prevention a given intervention represents (48%); describe the importance of integrating both direct education and PSE interventions (21%). Change between pre- and post- for Module 3: Engaging the Community, showed participants' significant ($P < 0.05$) positive change in their ability to identify the role of community engagement in systems approaches to health promotion (66%); describe basic principles for community engagement and working in partnerships (69%); identify strategies that are appropriate for different levels of community participation (70%); (the participant) can tell the difference between outreach and engagement (71%). Change between pre- and post- for Module 4: Knowing your Community, showed participants' significant ($P < 0.05$) positive change in their ability to describe the purpose and role of community assessment in PSE approaches (51%); explain why learning about (their) community is an ongoing process that increases the effectiveness of (their) work (70%); identify assessment tools that relate to health promotion (19%). Change between pre- and post- for Module 5: Putting it all together, showed participants' significant ($P < 0.05$) positive change in their ability to explain that implementing PSE approaches requires ongoing learning, reflection, and practice (63%); locate resources in the Systems Approaches Toolkit to that can be used to communicate about systems approaches in communities (78%); locate resources in the Systems Approaches Toolkit that can be used to build their community development and leadership skills (77%); and set have specific goals for implementing PSE approaches in their work (62%). The positive change in mean (SD) for pre- and post-, and p-value for the mean change between pre- and post- for overall course and Modules 1 through 5 are summarized in Table 3.1.

For the overall course, participants who reported a pre-, post-change, 97.17% had a positive change from [strongly disagree + disagree] to [strongly agree +agree]. A positive change from [strongly disagree + disagree] to [strongly agree +agree] was noted for each of the modules, with an average of 92.83% participants having a positive change form [strongly disagree + disagree] to [strongly agree +agree] across all modules. Table 3.2 summarizes the pre- post change descriptive statistics and McNemar's Chi-Square test for overall course and modules 1 through 5.

Upon completion of each module, session participants reported high satisfaction with the course activities being relevant to their work. The after-session evaluations for each module showed 96.3% of participants agreed or strongly agreed that the modules included information,

tools, examples and/or activities that were relevant to their day-to-day work. After module evaluations for module 1-5 are summarized in Table 3.3.

The participants also reported high satisfaction with the course's ease of use and accessibility. The after-course evaluation showed 93.5% of participants rated the course's ease of navigation as excellent or good, 95% rated the course's visual appearance as excellent or good, 90.7% reported the course met the needs of diverse learning styles, and 92.2% rated the courses' accessibility as excellent or good.

In development of the marketing plan, I found that there was still room for the SAHC training course to be marketed to the SNAP-Ed implementing agencies across the U.S. UMN Extension rolled out the SAHC program nationwide in 2017 and has had 42 organizations, with approximately 30 of those being SNAP-Ed implementing agencies, complete the web-based training course. Currently SNAP-Ed has approximately 150 implementing agencies across the nation who are expected to implement PSE change interventions through their SNAP-Ed programs per the federal SNAP-Ed guidance (United States Department of Agriculture, 2020). My marketing plan addressed those agencies not yet participating in SAHC and the communication channels and action steps to reach them.

Table 3.1

Percentages of Participants who Showed a Positive Change, Mean (SD) for Pre-and Post-, and P-Value for the Mean Change between Pre-and Post-for Overall Course and Module 1-5 (N=973).

At this time, to what extent do you disagree or agree with the statements below?	**Overall Course**			
	%	***M (SD) for pre***	***M (SD) for post***	***p-value***
I am comfortable using the terms, Policy, Systems, and Environmental (PSE) change when I work in the community.	48	*2.9 (0.7)*	*3.4 (0.6)*	*<0.001*
I am comfortable explaining the terms, Policy, Systems, and Environmental (PSE), change when I work in the community.	58	*2.7 (0.8)*	*3.3 (0.6)*	*<0.001*
I am comfortable using the Social-Ecological Model when I work in the community.	64	*2.5 (0.8)*	*3.3 (0.6)*	*<0.001*
I am comfortable explaining the Social-Ecological Model when I work in the community.	65	*2.4 (0.8)*	*3.2 (0.6)*	*<0.001*
I am prepared to engage with communities and partners to implement and support PSE change.	41	*2.9 (0.8)*	*3.4 (0.6)*	*<0.001*
I am comfortable assessing current needs and conditions in communities to make decisions about PSE approaches.	50	*2.7 (0.8)*	*3.3 (0.6)*	*<0.001*
Before and after module 1…	**Module 1**			
	%	***M (SD) for pre***	***M (SD) for post***	***p-value***
I can explain how systems impact whether making healthy choices is easy or difficult.	64	*2.7 (0.7)*	*3.4 (0.6)*	*<0.001*
I can define the terms, PSE, or policy, systems, and environmental change.	60	*2.8 (0.8)*	*3.5 (0.6)*	*<0.001*
I can describe the Social-Ecological Model.	67	*2.5 (0.8)*	*3.2 (0.6)*	*<0.001*
I can describe how multi-level approaches to health promotion can have a greater impact than direct education alone.	65	*2.7 (0.8)*	*3.5 (0.6)*	*<0.001*
Before and after module 2…	**Module 2**			
	%	***M (SD) for pre***	***M (SD) for post***	***p-value***
When working on an issue, I can identify interventions to take at each level of the Spectrum of Prevention.	73	*2.7 (0.7)*	*3.3 (0.6)*	*<0.001*

I can recognize which level on the Spectrum of Prevention a given intervention represents.	48	*2.4 (0.7)*	*3.2 (0.6)*	*<0.001*
I can describe the importance of integrating both direct education and PSE interventions.	21	*2.8 (0.8)*	*3.5 (0.6)*	*<0.001*

		Module 3		
Before and after module 3…	**%**	***M (SD) for pre***	***M (SD) for post***	***p-value***
I can identify the role of community engagement in systems approaches to health promotion.	66	*2.7 (0.8)*	*3.4 (0.6)*	*<0.001*
I can describe basic principles for community engagement and working in partnerships.	69	*2.5 (0.8)*	*3.3 (0.6)*	*<0.001*
I can identify strategies that are appropriate for different levels of community participation.	70	*2.5 (0.8)*	*3.2 (0.7)*	*<0.001*
I can tell the difference between outreach and engagement.	71	*2.6 (0.8)*	*3.5 (0.7)*	*<0.001*

		Module 4		
Before and after module 4…	**%**	***M (SD) for pre***	***M (SD) for post***	***p-value***
I can describe the purpose and role of community assessment in PSE approaches.	51	*2.8 (0.7)*	*3.5 (0.6)*	*<0.001*
I can explain why learning about your community is an ongoing process that increases the effectiveness of your work.	70	*3.0 (0.7)*	*3.6 (0.6)*	*<0.001*
I can identify assessment tools that relate to health promotion.	19	*2.7 (0.8)*	*3.4 (0.6)*	*<0.001*

		Module 5		
Before and after module 5…	**%**	***M (SD) for pre***	***M (SD) for post***	***p-value***
I can explain that implementing PSE approaches requires ongoing learning, reflection, and practice.	63	*2.8 (0.7)*	*3.5 (0.6)*	*<0.001*
I can locate resources in the Systems Approaches Toolkit that can be used to communicate about systems approaches in communities.	78	*2.3 (0.8)*	*3.5 (0.7)*	*<0.001*
I can locate resources in the Systems Approaches Toolkit that can be used to build my community development and leadership skills.	77	*2.3 (0.8)*	*3.4 (0.7)*	*<0.001*

I have specific goals for implementing PSE approaches in my work.	62	*2.6 (0.8)*	*3.3 (0.6)*	*<0.001*

Note. 1. Wilcoxon signed-rank tests were used to compare mean differences between pre and post, using α level of 0.05.
2. %, M and SD represent percentage, mean, and standard deviation, respectively.
3. Mean and SD were calculated based on a four-point scale: Strongly disagree (1), Disagree (2), Agree (3), and Strongly agree (4).

Table 3.2

Pre- Post Change Descriptive Statistics and McNemar's Chi-Square Test for Overall Course and Module 1-5 (N=973).

Outcomes	**No Pre-Post change N (%)**	**Pre-Post with change N (%)**	**Pre-post Change[1]**		**McNemar's Chi-square p-value**
			[Strongly Agree + Agree] to [Strongly Disagree + Disagree] N (%)[2]	**[Strongly Disagree + Disagree] to [Strongly Agree + Agree] N (%)[2]**	
Overall training					
I am comfortable using the terms, Policy, Systems, and Environmental (PSE) change when I work in the community.	715 (73.5%)	258 (26.5%)	9 (3.5%)	**249 (96.5%)**	<0.001
I am comfortable explaining the terms , Policy, Systems, and Environmental (PSE) change when I work in the community.	604 (62.1%)	369 (37.9%)	7 (1.9%)	**362 (98.1%)**	<0.001
I am comfortable using the Social-Ecological Model when I work in the community.	503 (51.7%)	470 (48.3%)	11 (2.3%)	**459 (97.7%)**	<0.001
I am comfortable explaining the Social-Ecological Model when I work in the community.	460 (47.3%)	513 (52.7%)	11 (2.1%)	**502 (97.9%)**	<0.001

I am prepared to engage with communities and partners to implement and support PSE change.	687 (70.6%)	286 (29.4%)	13 (4.5%)	**273 (95.5%)**	<0.001
I am comfortable assessing current needs and conditions in communities to make decisions about PSE approaches.	603 (44.2%)	370 (55.8%)	10 (2.7%)	**360 (97.3%)**	<0.001
Module 1					
I can explain how systems impact whether making healthy choices is easy or difficult.	620 (63.7%)	353 (36.3%)	25 (7.1%)	**328 (92.9%)**	<0.001
I can define the terms, PSE, or policy, systems, and environmental change.	618 (63.5%)	355 (36.5%)	26 (7.3%)	**329 (92.7%)**	<0.001
I can describe the Social-Ecological Model.	469 (48.2%)	504 (51.8%)	35 (6.9%)	**469 (93.1%)**	<0.001
I can describe how multi-level approaches to health promotion can have a greater impact than direct education alone.	581 (59.7%)	392 (40.3%)	29 (7.4%)	**363 (92.6%)**	<0.001
Module 2					
When working on an issue, I can identify interventions to take at each level of the Spectrum of Prevention.	463 (47.6%)	510 (52.4%)	39 (7.6%)	**471 (92.4%)**	<0.001
I can recognize which level on the Spectrum of Prevention a given intervention represents.	432 (44.4%)	541 (55.6%)	40 (7.4%)	**501 (92.6%)**	<0.001
I can describe the importance of integrating both direct education and PSE interventions.	653 (67.1%)	320 (32.9%)	33 (10.3%)	**287 (89.7%)**	<0.001
Module 3					

I can identify the role of community engagement in systems approaches to health promotion.	565 (58.1%)	408 (41.9%)	41 (10.0%)	**367 (90.0%)**	<0.001
I can describe basic principles for community engagement and working in partnerships.	472 (48.5%)	501 (51.5%)	50 (10.0%)	**451 (90.0%)**	<0.001
I can identify strategies that are appropriate for different levels of community participation.	427 (43.9%)	546 (56.1%)	56 (10.3%)	**490 (89.7%)**	<0.001
I can tell the difference between outreach and engagement.	511 (52.5%)	462 (47.5%)	49 (10.6%)	**413 (89.4%)**	<0.001
Module 4					
I can describe the purpose and role of community assessment in PSE approaches.	663 (68.1%)	310 (31.9%)	28 (9.0%)	**282 (91.0%)**	<0.001
I can explain why learning about your community is an ongoing process that increases the effectiveness of your work.	750 (77.1%)	223 (22.9%)	20 (9.0%)	**203 (91.0%)**	<0.001
I can identify assessment tools that relate to health promotion.	547 (56.2%)	426 (43.8%)	32 (7.5%)	**394 (92.5%)**	<0.001
Module 5					
I can explain that implementing PSE approaches requires ongoing learning, reflection, and practice.	673 (69.2%)	300 (30.8%)	20 (6.7%)	**280 (93.3%)**	<0.001
I can locate resources in the Systems Approaches Toolkit that can be used to communicate about systems approaches in communities.	349 (35.9%)	624 (64.1%)	45 (7.2%)	**579 (92.8%)**	<0.001
I can locate resources in the Systems Approaches Toolkit that can be used to	353 (36.3%)	620 (63.7%)	47 (7.6%)	**573 (92.4%)**	<0.001

build my community development and leadership skills.					
I have specific goals for implementing PSE approaches in my work.	539 (55.4%)	434 (44.6%)	33 (7.6%)	**401 (92.4%)**	<0.001

[1]Positive direction of change is **bold**; [2]Percent calculated out of N with any change.

References: R Core Team. (2019). R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. URL. https://www.R-project.org/

Table 3.3

After module evaluations for module 1-5 (N=973).

To what extent do you disagree or agree with the statements below? -	**Module 1, n (%)**	**Module 2, n (%)**	**Module 3, n (%)**	**Module 4, n (%)**	**Module 5, n (%)**
The module included examples and/or activities that are relevant to my work.					
Strongly disagree	18 (1.9)	12 (1.2)	10 (1.0)	17 (1.8)	14 (1.4)
Disagree	15 (1.5)	19 (2.0)	23 (2.4)	22 (2.3)	30 (3.1)
Agree	468 (48.1)	494 (50.8)	580 (59.7)	531 (54.7)	561 (57.7)
Strongly Agree	471 (48.5)	448 (46.0)	359 (36.9)	401 (41.3)	367 (37.8)
I will use information and tools from the module in my work.					
Strongly disagree	17 (1.7)	11 (1.1)	9 (0.9)	16 (1.6)	11 (1.1)
Disagree	16 (1.6)	14 (1.4)	19 (2.0)	19 (2.0)	28 (2.9)
Agree	478 (49.2)	491 (50.5)	546 (56.2)	508 (52.2)	516 (53.2)
Strongly Agree	461 (47.4)	457 (47.0)	398 (40.9)	430 (44.2)	415 (42.8)

Chapter 4 - Discussion

Overall, SAHC is an effective professional development course that succeeds in teaching public health professionals how to 'think, see and do" effective systems-level change work. After completing the course, participants believed themselves to be more comfortable and better equipped with the skills needed to engage in PSE approaches within their communities. These results are consistent with the findings from the SAHC pilot. The SAHC training course utilized both the Spectrum of Prevention and the Social Ecological Model as the guiding frameworks. Grounded in adult learning practices, material was presented through activities, examples, stories, reflection questions, and interactive exercises.

With all survey items answered by SAHC participants presenting statistically significant positive change, there were three survey items that had a higher positive change in knowledge than the others, survey items in Module 2 and Module 5. The survey items addressed the ability to identify appropriate interventions at each level of the Spectrum of Prevention (Module 2; Q1) and locate resources in the Systems Approaches Toolkit (Module 5; Q2, Q3). The McNemar test supports the high percent change in these modules with a significant move from [strongly disagree + disagree] to [strongly agree +agree] in the three survey items. With the course using the Spectrum of Prevention as one of the guiding frameworks, it is not surprising that this was one of the areas that saw a higher positive change in knowledge. It is also not surprising that Module 5 also had a high percentage of positive change with the introduction of the Systems Approach Toolkit. The concepts and materials presented in these modules could have been new to the participants or the participants believed they had grown in their understanding of these concepts resulting in a higher percent overall change.

Although all survey items answered by the SAHC participants presented statistically significant positive change, a less positive change of knowledge was observed regarding importance of integrating both direct education and PSE interventions (Module 2, Q3) and identifying assessment tools that relate to health promotion (Module 4 Q3). The lower percent change in these two survey items could be a result of participants having high pre-module knowledge in these two systems approach topics and believing they entered the module knowing the concepts, but the test show participants a significant move from [strongly disagree + disagree] to [strongly agree +agree] which demonstrated that participants did gain greater understanding of the concepts in both modules.

It is also important to note that after the completion of the training, >90% of participants believed the training was relevant to their day-to-day work. The training having relevance to the work of the participants speaks to the design of the training which was grounded in adult education principles and constructivist learning theories. These principles allowed participants to relate the content to their own experiences which helped participants better understand the course materials.

Research supports that there are many factors that influence an individual's choice about their health and that using the systems approach to address the multiple levels of influence through PSE is needed to make healthy choices more desirable and attainable (Sims & Aboelata, 2019). Research also supports the need for training centered around PSE (Hill et al., 2020). The significant increases in comfort and ability to identify and describe key concepts and terminology gained from completing this course help meet the need to increase the capacity of public health professions to engage and implement PSE change approaches. The content of the SAHC course was found to be relevant to all roles within an organization and levels of staff involvement in PSE. Although there were significant changes after the training course, there is also a need to explore whether the comfort and ability to engage and implement PSE change approaches are sustained over time.

Chapter 5 - Competencies

Student Attainment of MPH Foundational Competencies

Competency 3–Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming, and software, as appropriate was fulfilled by working with UMN doctoral student, Aysegul (Aysha) Baltaci in analyzing the three years of pre- and post- course and retrospective module survey results of the SAHC program. I worked with Aysha to determine the process for removing the duplicate data within the dataset. Once the data was cleaned and a codebook established, I was able to start examining the data to determine what data sets and appropriate statistical data models could be used to identify relationships among data variables relevant to my research questions: 1.) Do SAHC participants report that after taking the course they are prepared to support, engage, and implement community PSE change? 2.) Do SAHC participants report that after taking the course they are comfortable supporting, engaging, and implementing community PSE change? The descriptive analyses using frequencies and percentages were used to describe the demographic characteristics, after-module, and overall course evaluations.

The Wilcoxon signed-rank test was conducted to compare mean changes between pre- and post- of the overall course and modules to examine whether there is significant change in participants' comfort and ability to identify and describe key concepts and terminology from the modules. Percentages of participants who showed a positive change, means and standard deviations of pre- and post- main outcome questions were used to identify patterns of change from pre- to post- for overall course and modules. Response options for the modules and overall pre- post- were dichotomized into two categories: [strongly disagree + disagree] and [strongly agree +agree]. McNemar's tests were conducted using these dichotomized options to examine whether participants' comfort, knowledge and understanding of key concepts and terminology improved after the modules and overall course.

Competency 4–Interpret results of data analysis for public health research, policy, or practice was fulfilled by analyzing data from SAHC pre- and post-overall course and module participant survey data. Through analysis of these data, patterns were recognized that answered my research question and showed the effectiveness of the training program. I was able to understand more clearly if the participants who completed the SAHC online professional training course were prepared to support, engage, and implement community PSE change and were comfortable supporting, engaging, and implementing community PSE change. This aspect of my experience allowed me to practice transforming data into a meaningful narrative in a

manuscript to be submitted to a peer reviewed article. Manuscripts submissions to peer reviewed journals help to establish evidence-based interventions which are vital to public health.

Competency 18–Select communication strategies for different audiences and sector was fulfilled by developing a marketing plan for the SAHC online professional training course. My responsibility was to help the SAHC team develop new strategies to market and communicate this professional development training opportunity. UMN Extension rolled out the SAHC program nationwide in 2017 and has had 42 organizations with 2470 participants enroll in the program. A total of 973 participants completed all five modules within the course. I met with members of the SAHC team to discuss past marketing strategies (2017, 2018), future goals and desired outcomes. The marketing plan I developed focuses on targeting strategic key stakeholders within the SNAP-Ed community, extension, and public health. In my current role as a state SNAP-Ed coordinator, I was able to leverage my connections within the SNAP-Ed implementing agency community through my relationships and committees I am involved with to not only build the marketing plan but help the team start implementing it. The plan identified the key stakeholders targeted, the channel of communication most appropriate for the audience and action steps for SAHC team to carry out.

Competency 19–Communicate audience-appropriate public health content, both in writing and through oral presentation was fulfilled by writing a manuscript to be submitted to a peer reviewed journal. My main responsibility of the manuscript were the methods, results, and discussion sections; however, I was also able to write the introduction and background sections. It is important to understand which peer reviewed journals will reach your intended audience. I had to research different publications to find the most appropriate journal to submit the SAHC manuscript to. I found the *Journal of Pedagogy in Health Promotion*, *Journal of Health Promotion Practice*, and *Journal of Nutrition Education and Behavior* to be the top three publications most appropriate for the SAHC manuscript. Contributing to peer reviewed journals is vital, as this is how the public health field forms a research base which helps guide practice decisions and deliver the desired outcomes of interventions and education.

Competency 21–Perform effectively on interprofessional teams was fulfilled by being able to work with the development and evaluation team for SAHC including the UMN doctoral student and my preceptor. My experience was done virtually so all communication with the UMN team was carried out either via video conferencing through Zoom, email, or the shared Google drive. This remote experience helped me enhance my communication, technology, and organization skills. While working with the team and communicating virtually, it was very important to have clear goals and an understanding on what each of our roles were. The

experience gave me several opportunities to perform effectively as part of the UMN team. One of the first opportunities was in the development of an authorship agreement for the manuscript submission. The overall purpose of the authorship agreement is to provide an easy and clear way to negotiate and determine authorship and to clarify the expected roles of each contributor. This involves discussing who will do or has done certain tasks and then it can be determined who and how those contributors would be listed on the article if accepted to the journal. It was also important to keep everyone on the team informed on my progress of analyzing and interpreting the data, decisions I was making, as well as any questions that I had as I moved through the project of writing the manuscript and developing the marketing plan. I had regular meetings with Aysha, who helped run statistical analysis of the data using their university statistical software R v 3.6.1 (R Core Team, 2019). I also had weekly meetings with Abby Gold who served as preceptor during my time at UMN. During our meetings I was also able to update her on my progress of my work. Other meetings with the rest of the team were scheduled as needed. I also had several opportunities to join the UMN extension team for their Friday webinar professional development training series.

Competency 22–Apply systems thinking tools to a public health issue was fulfilled by developing the marketing plan and working with the team to determine opportunities for acquiring more organizations and participants to enroll in the training. Identifying key stakeholders, developing channels of communications and action steps were also part of the process. During this experience I was immersed in systems thinking as the evaluation of SAHC aimed to determine if, after the course, SAHC participants were prepared to support, engage, and implement community PSE change and if SAHC participants were comfortable supporting, engaging, and implementing community PSE change approaches through the Systems of Prevention. The training also provided participants with the tools to engage in and transform public health systems.

Table 5.1 Summary of MPH Foundational Competencies

Number and Competency		**Description**
3	Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming, and software, as appropriate	Worked in conjunction with the SAHC team to determine appropriate statistical tests to best analyze the data based on research questions I developed.
4	Interpret results of data analysis for public health research, policy, or practice	Analyzed the data collected from the SAHC pre- and post-course and retrospective module data. Recognized patterns that showed effectiveness of the training. The

		output from the data analysis was used to create the results section for the manuscript to be submitted to a peer reviewed journal.
18	Select communication strategies for different audiences and sector	Developed and helped implement a marketing plan for SAHC web-based training course.
19	Communicate audience-appropriate public health content, both in writing and through oral presentation	Produced a manuscript to be submitted to a peer reviewed journal.
21	Perform effectively on interprofessional teams	Worked in conjunction with the SAHC team to produce the manuscript and marketing plan for the SAHC training course and participated in UMN Extension professional development opportunities.
22	Apply systems thinking tools to a public health issue	Identified key stakeholders, communication channels and action steps to increase awareness and participation in the SAHC training through the development of a marketing plan.

Table 5.2 MPH Foundational Competencies and Course Taught In

22 Public Health Foundational Competencies Course Mapping	MPH 701	MPH 720	MPH 754	MPH 802	MPH 818
Evidence-based Approaches to Public Health					
1. Apply epidemiological methods to the breadth of settings and situations in public health practice	x		x		
2. Select quantitative and qualitative data collection methods appropriate for a given public health context	x	x	x		
3. Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming and software, as appropriate	x	x	x		
4. Interpret results of data analysis for public health research, policy or practice	x		x		
Public Health and Health Care Systems					
5. Compare the organization, structure and function of health care, public health and regulatory systems across national and international settings		x			
6. Discuss the means by which structural bias, social inequities and racism undermine health and create challenges to achieving health equity at organizational, community and societal levels					x
Planning and Management to Promote Health					
7. Assess population needs, assets and capacities that affect communities' health		x		x	
8. Apply awareness of cultural values and practices to the design or implementation of public health policies or programs					x
9. Design a population-based policy, program, project or intervention			x		
10. Explain basic principles and tools of budget and resource management		x	x		

22 Public Health Foundational Competencies Course Mapping	MPH 701	MPH 720	MPH 754	MPH 802	MPH 818
11. Select methods to evaluate public health programs	x	x	x		
Policy in Public Health					
12. Discuss multiple dimensions of the policy-making process, including the roles of ethics and evidence		x	x	x	
13. Propose strategies to identify stakeholders and build coalitions and partnerships for influencing public health outcomes		x		x	
14. Advocate for political, social or economic policies and programs that will improve health in diverse populations		x			x
15. Evaluate policies for their impact on public health and health equity		x		x	
Leadership					
16. Apply principles of leadership, governance and management, which include creating a vision, empowering others, fostering collaboration and guiding decision making		x			x
17. Apply negotiation and mediation skills to address organizational or community challenges		x			
Communication					
18. Select communication strategies for different audiences and sectors	DMP 815, FNDH 880 or KIN 796				
19. Communicate audience-appropriate public health content, both in writing and through oral presentation	DMP 815, FNDH 880 or KIN 796				
20. Describe the importance of cultural competence in communicating public health content		x			x
Interprofessional Practice					
21. Perform effectively on interprofessional teams		x			x
Systems Thinking					
22. Apply systems thinking tools to a public health issue			x	x	

Student Attainment of MPH Emphasis Area Competencies

My Applied Practicum Experience (APE) gave me the opportunity to go beyond nutrition and apply these competencies in a broader public health context. I believe through the APE and my MPH course work I have attained all five public health nutrition competencies listed in Table 5.3.

Competency 1–Information literacy of public health nutrition was fulfilled through the combination of my APE experience, and MPH coursework, both of which equipped me with the ability to acquire, evaluate and use information in a way that others can learn. Many of the courses throughout the MPH program required class presentations, participation in group discussions and researching and writing papers on public health nutrition. Through my APE experience I was able to communicate to the public health community through a written manuscript the value of PSE approaches and in my current role I can communicate an implementation and evaluation plan for nutrition education and PSE interventions.

Competency 2–Compare and relate research into practice. With the knowledge gained from FNDH 844 *Nutritional Epidemiology* and MPH 701 *Fundamental Methods of Biostatistics* I was able to conduct program evaluation through examining the results of the SAHC training evaluation data and communicating those results to the public health community by writing a manuscript to be submitted to a peer reviewed journal.

Competency 3–Population-based health administration. The courses MPH 818 *Social and Behavioral Bases of Public Health*, Socio 541 *Wealth, Power and Privilege*, and Socio 570 *Race and Ethnic Relations in the U.S.* helped me attain this competency. All three of these classes touched on the relationships among health outcomes, health behaviors and social, political, and environmental structures. Understanding how health outcomes are related to the social, political, and environmental structures helped me in my APE to understand the key objectives of the SAHC training which prepared me to be able to effectively determine the effectiveness of the training and assess and improve the quality of the training. All the concepts within the SAHC training supported what I had learned in these courses.

Competency 4–Analysis of human nutrition principles. FNDH 600 *Public Health Nutrition* and MPH 701 *Fundamental Methods of Biostatistics* helped me to fulfill this competency. FNDH 600 introduced me to a wide variety of public health programs and foundations of theory in health promotion and health behaviors. This class helped me understand the theories and activities being used in the SAHC training. In MPH 701 we learned the fundamental concepts in statistics, which provided me the knowledge base to perform the analyses and interpret the statistical results of the SAHC training program survey data.

Competency 5–Analysis of nutrition epidemiology. The course FNDH 844 *Nutritional Epidemiology* helped me attain this competency. In this course we examined the methodologic strengths and weaknesses of major types of nutrition epidemiological studies and critically review data and interpret data. We also learned the importance of both internal external validity of a study. This strengthened my ability to write the manuscript and select the peer reviewed journal for the submission of the manuscript.

Table 5.3 Summary of MPH Emphasis Area Competencies

MPH Emphasis Area: Nutrition		
Number and Competency		**Description**
1	***Information literacy of public health nutrition***	Many of the courses throughout the MPH program required class presentations, participation in group discussions and researching and writing papers on public health nutrition. I was able to communicate to the public health community through a written manuscript.
2	***Compare and relate research into practice***	With the knowledge gained from FNDH 844 *Nutritional Epidemiology* and MPH 701 *Fundamental Methods of Biostatistics* I was able to conduct program evaluation through examining the results of the SAHC training evaluation data
3	***Population-based health administration***	MPH 818 *Social and Behavioral Bases of Public Health*, Socio 541 *Wealth, Power and Privilege*, and Socio 570 *Race and Ethnic Relations in the U.S* helped me to understand the relationships among health outcomes, health behaviors and social, political, and environmental structures which in turn help to critically evaluate the SAHC program.
4	***Analysis of human nutrition principles***	FNDH 600 *Public Health Nutrition* helped me to understand the theories and activities being used in the SAHC training. MPH 701 *Fundamental Methods of Biostatistics* provided me the knowledge base to perform the analyses and interpret the statistical results of the SAHC training program survey data.
5	***Analysis of nutrition epidemiology***	FNDH 844 *Nutritional Epidemiology* strengthened my ability to write the SAHC manuscript.

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Appendix

Appendix 1 Manuscript for submission to Health Promotion Practice Journal

Proposed Manuscript for submission to Journal of Health Promotion Practice

Systems Approaches for Healthy Communities: Online Professional Development Program in Policy, Systems and Environmental Approaches

Lisa Ross

Applied Practicum Experience

Spring 2021

INTRODUCTION

Many factors within an individual's social, physical, and economic environments influence their healthy lifestyle choices (Sims & Aboelata, 2019). National institutions and organizations as well as states, local communities, and public health professionals are examining the use of systems thinking as a way of understanding sectors of influence and focusing on social and physical spaces where individuals live, learn, work, and play for public health interventions (Plough, 2015; Sallis et al., 2006; Sims & Aboelata, 2019). The Healthy, Hunger-Free Kids Act 2010 aided in the Supplemental Nutrition Assistance Program-Education (SNAP-Ed) program requiring the use of comprehensive interventions to address multiple levels of the Social Ecological Model along with direct education to reach the target audience (USDA, 2020). Policy, systems, and environmental (PSE) approaches seek to go beyond increasing individual knowledge and skills and are designed to create environments where healthy choices are easy and preferred. In this new shift in focus, many practitioners lack the knowledge or skills needed to incorporate PSE approaches into their efforts and there is a clear need for more training centered around PSE (Hill et al., 2020; Pope et al., 2020; Stark et al., 2011).

BACKGROUND

The Systems Approaches for Healthy Communities (SAHC) is a web-based professional development course designed for organizations, departments, networks, coalitions, and nonprofits engaged in health promotion and PSE change approaches to take together. The course emerged due to a shift in programmatic focus and documented needs and requests for additional training. The course was designed to increase comfort, ability, and knowledge in implementing PSE. The course consists of five online self-paced modules, Module 1; Frameworks for Healthy Communities, Module 2: Taking a Systems Approach, Module 3: Engaging the Community,

Module 4: Knowing your Community, Module 5: Putting it all together. Modules average 60 minutes each, with the material presented through activities, examples, stories, reflection questions, and interactive exercises. The modules are intended to be conducted over a flexible time frame of approximately 10 to 12 weeks. An essential component of the program is the emphasis on coaching staff as they participate in the program. The coaching component, which uses an organization's internal team leaders to support participants as they reflect on the information provided in the modules and consider ways to apply it to their daily work.

Theoretical frameworks

SAHC utilized both the Spectrum of Prevention and the Social Ecological Model as guiding frameworks (Cohen & Swift, 1999; Sallis et al., 2006; USDA, 2020). Individuals are influenced and impacted by the environments that surround them and understanding ways to address and improve population health is vital. The spectrum of prevention "shifts attention from individually focused health education to a systems approach" (Cohen & Swift, 1999). To better address the complexity of the social, organizational, and political structures of public health issues the training drew on the practice of systems thinking. (Leischow & Milstein, 2006).

Instructional design

The instructional design was grounded in adult education principles and constructivist learning theories (Harlow et al., 2006; Tainsh, 2016; Tamim & Grant, 2017). Each module had the participants respond in writing to several reflection questions to apply content to their own experiences, which allowed the participants to understand the application and relevance of the course materials (Tainsh, 2016). The web-based course provides organizations the ability to have all staff involved in the training no matter their location and staff are able work at their own

pace. Coaching was provided to organizational team leaders to support start up, assist in establishing a timeline for the training, orient team leaders to the SAHC coaching guide, and provide check-in and wrap-up calls.

METHOD

Procedure

The pre- and post- survey items addressed the participant's comfort level with PSE, community and partner engagement, and the Social Ecological Model. The response options to the pre- and post-survey items were strongly disagree, disagree, agree, and strongly agree. The data analyzed in this study were coded as follows, 1=strongly disagree, 2=disagree, 3=agree, and 4=strongly disagree. The pre-survey also included demographic characteristic questions. The post-survey also included items related to the ease of use and accessibility of the course. Response options for these survey items included: excellent, good, fair, poor. Each individual module began with a brief open-ended reflection question exploring how participant's thinking had changed as a result of the prior module (completed at the beginning of modules 2-5). The module surveys used a retrospective pretest model, which asked participants to report their agreement with a statement specific to that module's objectives after participating in the module and then retrospectively report their agreement before participating in the modules. Response options for all module surveys were, strongly disagree, disagree, agree, and strongly agree. The data analyzed in this study were coded as follows, 1=strongly disagree, 2=disagree, 3=agree, and 4=strongly disagree. The survey items for each module ranged from 3-5 items. Because the concepts taught throughout the course were complex and gradually clarified during the course, the retrospective pretest module was used to gauge change (Plough, 2015; Sims & Aboelata,

2019). Survey items in the pre-, modules, and post- showed adequate internal consistency with an overall Cronbach α of .95.

Participants

A total of 2470 participants completed at least one part of the survey (pre-, module 1-5, and/or post-survey), with 973 participants who completed pre-, modules 1-5, and post-tests. There were 42 organizations that participated. Of the 973 participants who completed the program, 868 (90%) were female; 424 (84.8%) were aged 26-64 years. The Race and Ethnicity of participants reported was 680 (71.5%) White or Caucasian; 136 (14.3%) Hispanic or Latino; 82 (8.6%) Black or African American. The education level of participants ranged from high school diploma to post 4-year college degree, with 821 (85.1%) of participants having a 4-year college degree or higher. Participants were able to select multiple roles within their organization that best matched their primary job responsibility(ies). Roles included individual education/direct education, PSE approaches at the community or county level, PSE approaches at the regional or state level, program coordination and/or supervision, specializing in a topic area, research and/or evaluation, professional/staff development, and administration. Participants reporting having more than one role was 71%. Participant demographic characteristic data are listed in Table 1.

Statistical analysis

The statistical software R v 3.6.1 (R Core Team, 2019) was used to perform statistical analyses. Descriptive analyses using frequencies (*n*) and percentages were used to describe the demographic characteristics and after module and overall course evaluations. The Wilcoxon signed-rank test was conducted to compare mean changes between pre- and post- of the overall course and modules to examine whether there are significant changes in participants' comfort

and ability to identify and describe key concepts and terminology from the modules. Percentages of participants who showed a positive change, means and standard deviations of pre- and post- main outcome questions were used to identify patterns of change from pre- to post- for overall course and modules (1-5). Response options for the modules and overall pre- post- were dichotomized into two categories: [strongly disagree + disagree] and [strongly agree + agree]. McNemar's tests were conducted using these dichotomized options to examine whether participants' confidence, knowledge and understanding of key concepts and terminology improved after the modules and overall course (Adedokun & Burgess, 2012). A p-value < 0.05 was considered statistically significant.

RESULTS

Among the 2470 participants who enrolled in the SAHC course, 973 completed all modules. A total of 1894 completed Module 1, 1826 completed Module 2, 1616 completed Module 3, 1496 completed Module 4, and 1331 completed Module 5. Change between pre-and post- for the overall course found participants showed a significant ($P < 0.05$) positive change in their comfort and ability in using the term PSE change, 48% ($p < 0.0001$); explaining the terms PSE change, 58% ($p < 0.0001$); using the Social-Ecological Model, 64% ($p < 0.0001$); explaining the Social-Ecological Model, 65% ($p < 0.0001$); assessing current needs and conditions in communities 50% ($p < 0.0001$) and prepared to engage with communities and partners to implement and support PSE, 41% ($p < 0.0001$). The positive change mean (SD) for pre- and post-, and p-value for the mean change between pre- and post-for overall course and Modules 1 through 5 are summarized in Table 2. After completing each module, the results showed significant ($P < 0.05$) positive change in knowledge and understanding of key concepts and terminology in each module. Change between pre- and post- for Module 1; Frameworks for

Healthy Communities showed participants significant ($P < 0.05$) positive change in their ability to explain how systems impact whether making healthy choices is easy or difficult, (64%); define the terms PSE change (60%); describe the Social-Ecological Model (67%); describe how multi-level approaches to health promotion can have a greater impact than direct education alone (65%). Change between pre- and post- for Module 2: Taking a Systems Approach showed participants significant ($P < 0.05$) positive change in their ability to identify interventions to take at each level of the Spectrum of Prevention (73%); recognize which level on the Spectrum of Prevention a given intervention represents (48%); describe the importance of integrating both direct education and PSE interventions (21%). Change between pre- and post- for Module 3: Engaging the Community, showed participants were able to identify the role of community engagement in systems approaches to health promotion (66%); describe basic principles for community engagement and working in partnerships (69%); identify strategies that are appropriate for different levels of community participation. (70%); I can tell the difference between outreach and engagement (71%). Change between pre- and post- for Module 4: Knowing your Community, showed participants significant ($P < 0.05$) positive change in their ability to describe the purpose and role of community assessment in PSE approaches (51%); explain why learning about your community is an ongoing process that increases the effectiveness of your work (70%); identify assessment tools that relate to health promotion (19%). Change between pre- and post- for Module 5: Putting it all together, showed participants significant ($P < 0.05$) positive change in their ability to explain that implementing PSE approaches requires ongoing learning, reflection, and practice (63%); locate resources in the Systems Approaches Toolkit to that can be used to communicate about systems approaches in communities (78%); locate resources in the Systems Approaches Toolkit that can be used to

build their community development and leadership skills (77%); and set have specific goals for implementing PSE approaches in their work (62%). The positive change mean (SD) for pre- and post-, and p-value for the mean change between pre- and post- for overall course and Module 1 through 5 are summarized in Table 2.

McNemar's Chi-Square test for the overall course showed participants who reported a pre-, post-change an average of 97.17% had a positive change from [strongly disagree + disagree] to [strongly agree +agree]. A positive change from [strongly disagree + disagree] to [strongly agree +agree] was noted for each of the modules, with an average of 92.83% participants having a positive change form [strongly disagree + disagree] to [strongly agree +agree] across all modules. Table 3 summarizes the pre- post change descriptive statistics and McNemar's Chi-Square test for overall course and modules 1 through 5.

Upon completion of each module session participants reported high satisfaction with the course activities being relevant to their work. The after-session evaluations for each module showed 96.3% of participants agreed or strongly agreed that the modules included information, tools, examples and/or activities that were relevant to their day-to-day work. The participants also reported high satisfaction with the course's ease of use and accessibility. The after-course evaluation showed 93.5% of participants rated the course's ease of navigation as excellent or good, 95% rated the course's visual appearance as excellent or good, 90.7% reported the course met the needs of diverse learning styles, and 92.2% rated the courses' accessibility as excellent or good.

DISCUSSION

The evaluation of SAHC aimed to determine if, after the course, SACH participants were prepared to support, engage, and implement community PSE change and if SACH participants

were confident/comfortable supporting, engaging, and implementing community PSE change. This 5-module course program utilized both the Spectrum of Prevention and the Social Ecological Model as the guiding frameworks. Grounded in adult learning practices, material was presented through activities, examples, stories, reflection questions, and interactive exercises. The results in this paper suggest that SAHC is an effective professional development course that succeeds in teaching public health professionals how to 'think, see and do" effective systems-level change work. After completing the course, participants felt more comfortable and better equipped with the skills needed to engage in PSE approaches within their communities and these results are consistent with the findings from the SAHC pilot. With all survey items answered by SAHC participants presenting statistically significant positive change, there were three survey items that had a higher positive change in knowledge than the others between (73-78%). The survey items were in Module 2 and Module 5. The survey items addressed the ability to identify appropriate interventions at each level of the Spectrum of Prevention (Module 2; Q1) and locating resources in the Systems Approaches Toolkit (Module 5; Q2, Q3). The McNemar test supports the high percent change in these modules with a significant move from [strongly disagree + disagree] to [strongly agree +agree] in the three survey items. With the course using the Spectrum of Prevention as one of the guiding frameworks, it is not surprising that this was one of the areas that saw a higher positive change in knowledge. It is also not surprising that Module 5 also had a high percentage of positive change with the introduction of the Systems Approach Toolkit. The concepts and materials presented in these modules could have been new to the participants or the participants believed they had grown in their understanding of these concepts resulting in a higher percent overall change.

Although, all survey items answered by the SAHC participants presented statistically significant positive change, a less positive change of knowledge was observed regarding importance of integrating both direct education and PSE interventions (Module 2, Q3) and, identifying assessment tools that relate to health promotion (Module 4 Q3). The lower percent change in these two survey items could be a result of participants having high pre-module knowledge in these two systems approach topics and believing they entered the module knowing the concepts, but the test show participants a significant move from [strongly disagree + disagree] to [strongly agree +agree] which demonstrated that participants did gain greater understanding of the concepts in both modules.

It is important to note that after the completion of the course, >90% of participants reported high satisfaction and relevance to their day-to-day work. The course having relevance to the participants daily work speaks to the design of the training and the use of adult learning principles which allowed participants to apply content to their own experiences, and to understand the application of the course materials.

Research supports that there are many factors that influence an individual's choice about their health and that using the systems approach to address the multiple levels of influence through PSE is needed to make healthy choices more desirable and attainable (Sims & Aboelata, 2019). Research also supports the need for training centered around PSE (Hill et al., 2020). The significant increases in comfort and ability to identify and describe key concepts and terminology gained from completing this course help meet the need to increase the capacity of public health professions to engage and implement PSE change approaches. The content of the SAHC course was found to be relevant to all roles within an organization and levels of staff involvement in PSE. Although there were significant changes after the training course, there is

also a need to explore whether the comfort and ability to engage and implement PSE change approaches are sustained over time. Perhaps development of a SAHC advanced course could build off and expand the teachings from this training to promote continued learning about systems approaches and how they can be a way to address complex issues faced in the public health field. As future work, it would be interesting to apply the SAHC content, activities, stories, and reflection questions to other program areas within extension.

Table 1.

Descriptive Statistics of Participants who Completed Pre-, Post-, and all Modules (N=973).

Demographic characteristics	*N* (%)[1]
Sex	
Male	93 (9.6)
Female	868 (90)
Transgender (Male-Female)	1 (0.1)
Transgender (Female-Male)	2 (0.2)
Age	
19-25	120 (12.5)
26-40	424 (44.2)
41-64	390 (40.6)
65 and over	26 (2.7)
Race/Ethnicity	
White or Caucasian	680 (71.5)
Hispanic or Latino	136 (14.3)
Black or African American	82 (8.6)
Asian or Asian American	0
Native American or Indigenous	10 (1.1)
Native Hawaiian or other Pacific Islander	0
More than One Races[2]	43 (4.5)
Education	
High school or GED	10 (1.0)
Some college credits but no degree	74 (7.7)
2-year college degree	59 (6.1)
4-year college degree	466 (48.3)

Post 4-year college degree (e.g., Masters, Ph.D., M.D.)	355 (36.8)
Primary Job Responsibilities[3]	
Only one job responsibility	343 (35.3)
More than one job responsibility	630 (64.7)

[1]Some numbers may not add up to the total participant number due to missing data.
[2]More than one race includes different combinations of Asian, Native Hawaiian or Pacific Islander, Black or African American, White, or Caucasian, American Indian, or Alaskan Native.
[3]Job responsibilities included Individual education / direct education, PSE approaches at a site, community, or county level, PSE approaches at a regional or state level, Program coordination and/or supervision, Specializing in a topic area (e.g., chronic disease prevention, early childhood obesity, etc.), Research and/or evaluation, Professional/staff development, Administration, None of the above (please specify).

Table 2.

Percentages of Participants who Showed a Positive Change, Mean (SD) for Pre-and Post-, and P-Value for the Mean Change between Pre-and Post-for Overall Course and Module 1 through 5 (N=973).

	Overall Course			
At this time, to what extent do you disagree or agree with the statements below?	**%**	***M (SD) for pre***	***M (SD) for post***	***p-value***
I am comfortable using the terms, Policy, Systems, and Environmental (PSE) change when I work in the community.	48	*2.9 (0.7)*	*3.4 (0.6)*	*<0.001*
I am comfortable explaining the terms, Policy, Systems, and Environmental (PSE), change when I work in the community.	58	*2.7 (0.8)*	*3.3 (0.6)*	*<0.001*
I am comfortable using the Social-Ecological Model when I work in the community.	64	*2.5 (0.8)*	*3.3 (0.6)*	*<0.001*
I am comfortable explaining the Social-Ecological Model when I work in the community.	65	*2.4 (0.8)*	*3.2 (0.6)*	*<0.001*
I am prepared to engage with communities and partners to implement and support PSE change.	41	*2.9 (0.8)*	*3.4 (0.6)*	*<0.001*
I am comfortable assessing current needs and conditions in communities to make decisions about PSE approaches.	50	*2.7 (0.8)*	*3.3 (0.6)*	*<0.001*
	Module 1			
Before and after module 1…	**%**	***M (SD) for pre***	***M (SD) for post***	***p-value***
I can explain how systems impact whether making healthy choices is easy or difficult.	64	*2.7 (0.7)*	*3.4 (0.6)*	*<0.001*
I can define the terms, PSE, or policy, systems, and environmental change.	60	*2.8 (0.8)*	*3.5 (0.6)*	*<0.001*
I can describe the Social-Ecological Model.	67	*2.5 (0.8)*	*3.2 (0.6)*	*<0.001*

I can describe how multi-level approaches to health promotion can have a greater impact than direct education alone.	65	*2.7 (0.8)*	*3.5 (0.6)*	*<0.001*
		Module 2		
Before and after module 2…	**%**	***M (SD) for pre***	***M (SD) for post***	***p-value***
When working on an issue, I can identify interventions to take at each level of the Spectrum of Prevention.	73	*2.7 (0.7)*	*3.3 (0.6)*	*<0.001*
I can recognize which level on the Spectrum of Prevention a given intervention represents.	48	*2.4 (0.7)*	*3.2 (0.6)*	*<0.001*
I can describe the importance of integrating both direct education and PSE interventions.	21	*2.8 (0.8)*	*3.5 (0.6)*	*<0.001*
		Module 3		
Before and after module 3…	**%**	***M (SD) for pre***	***M (SD) for post***	***p-value***
I can identify the role of community engagement in systems approaches to health promotion.	66	*2.7 (0.8)*	*3.4 (0.6)*	*<0.001*
I can describe basic principles for community engagement and working in partnerships.	69	*2.5 (0.8)*	*3.3 (0.6)*	*<0.001*
I can identify strategies that are appropriate for different levels of community participation.	70	*2.5 (0.8)*	*3.2 (0.7)*	*<0.001*
I can tell the difference between outreach and engagement.	71	*2.6 (0.8)*	*3.5 (0.7)*	*<0.001*
		Module 4		
Before and after module 4…	**%**	***M (SD) for pre***	***M (SD) for post***	***p-value***
I can describe the purpose and role of community assessment in PSE approaches.	51	*2.8 (0.7)*	*3.5 (0.6)*	*<0.001*
I can explain why learning about your community is an ongoing process that increases the effectiveness of your work.	70	*3.0 (0.7)*	*3.6 (0.6)*	*<0.001*
I can identify assessment tools that relate to health promotion.	19	*2.7 (0.8)*	*3.4 (0.6)*	*<0.001*
		Module 5		
Before and after module 5…	**%**	***M (SD) for pre***	***M (SD) for post***	***p-value***

Table 3.

Pre- Post Change Descriptive Statistics and McNemar's Chi-Square Test for Overall Course and Module 1 through 5 (N=973).

Outcomes	No Pre-Post change N (%)	N with change	Pre-post Change[1]		McNemar's Chi-square p-value
			[Strongly Agree + Agree] to [Strongly Disagree + Disagree] N (%)[2]	[Strongly Disagree + Disagree] to [Strongly Agree + Agree] N (%)[2]	
Overall training					
I am comfortable using the terms, Policy, Systems, and Environmental (PSE) change when I work in the community.	715 (73.5%)	258	9 (3.5%)	**249 (96.5%)**	<0.001
I am comfortable explaining the terms , Policy, Systems, and Environmental (PSE) change when I work in the community.	604 (62.1%)	369	7 (1.9%)	**362 (98.1%)**	<0.001
I am comfortable using the Social-Ecological Model when I work in the community.	503 (51.7%)	470	11 (2.3%)	**459 (97.7%)**	<0.001
I am comfortable explaining the Social-Ecological Model when I work in the community.	460 (47.3%)	513	11 (2.1%)	**502 (97.9%)**	<0.001
I am prepared to engage with communities and partners to implement and support PSE change.	687 (70.6%)	286	13 (4.5%)	**273 (95.5%)**	<0.001
I am comfortable assessing current needs and conditions in communities to make decisions about PSE approaches.	603 (44.2%)	370	10 (2.7%)	**360 (97.3%)**	<0.001

Module 1					
I can explain how systems impact whether making healthy choices is easy or difficult.	620 (63.7%)	353	25 (7.1%)	**328 (92.9%)**	<0.001
I can define the terms, PSE, or policy, systems, and environmental change.	618 (63.5%)	355	26 (7.3%)	**329 (92.7%)**	<0.001
I can describe the Social-Ecological Model.	469 (48.2%)	504	35 (6.9%)	**469 (93.1%)**	<0.001
I can describe how multi-level approaches to health promotion can have a greater impact than direct education alone.	581 (59.7%)	392	29 (7.4%)	**363 (92.6%)**	<0.001
Module 2					
When working on an issue, I can identify interventions to take at each level of the Spectrum of Prevention.	463 (47.6%)	510	39 (7.6%)	**471 (92.4%)**	<0.001
I can recognize which level on the Spectrum of Prevention a given intervention represents.	432 (44.4%)	541	40 (7.4%)	**501 (92.6%)**	<0.001
I can describe the importance of integrating both direct education and PSE interventions.	653 (67.1%)	320	33 (10.3%)	**287 (89.7%)**	<0.001
Module 3					
I can identify the role of community engagement in systems approaches to health promotion.	565 (58.1%)	408	41 (10.0%)	**367 (90.0%)**	<0.001
I can describe basic principles for community engagement and working in partnerships.	472 (48.5%)	501	50 (10.0%)	**451 (90.0%)**	<0.001

I can identify strategies that are appropriate for different levels of community participation.	427 (43.9%)	546	56 (10.3%)	**490 (89.7%)**	<0.001
I can tell the difference between outreach and engagement.	511 (52.5%)	462	49 (10.6%)	**413 (89.4%)**	<0.001
Module 4					
I can describe the purpose and role of community assessment in PSE approaches.	663 (68.1%)	310	28 (9.0%)	**282 (91.0%)**	<0.001
I can explain why learning about your community is an ongoing process that increases the effectiveness of your work.	750 (77.1%)	223	20 (9.0%)	**203 (91.0%)**	<0.001
I can identify assessment tools that relate to health promotion.	547 (56.2%)	426	32 (7.5%)	**394 (92.5%)**	<0.001
Module 5					
I can explain that implementing PSE approaches requires ongoing learning, reflection, and practice.	673 (69.2%)	300	20 (6.7%)	**280 (93.3%)**	<0.001
I can locate resources in the Systems Approaches Toolkit that can be used to communicate about systems approaches in communities.	349 (35.9%)	624	45 (7.2%)	**579 (92.8%)**	<0.001
I can locate resources in the Systems Approaches Toolkit that can be used to build my community development and leadership skills.	353 (36.3%)	620	47 (7.6%)	**573 (92.4%)**	<0.001
I have specific goals for implementing PSE approaches in my work.	539 (55.4%)	434	33 (7.6%)	**401 (92.4%)**	<0.001

[1]Positive direction of change is **bold**; [2] Percent calculated out of N with any change.

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Appendix 2 Marketing Plan

Systems Approach for Health Communities

Marketing Plan 2021

PROGRAM OVERVIEW

Systems Approaches for Healthy Communities is a web-based, professional development program, developed by University of Minnesota Extension, that promotes the integration of policy, systems, and environmental (PSE) change approaches with educational strategies.

The program includes a five-module, online professional development course. It uses the Social Ecological Model, the Spectrum of Prevention, and other tools to build the skills of health professionals in using PSE approaches with a wide array of communities and organizations. In addition to the online course, this program also includes an Implementation Guide, additional resources for organizations, and materials to support course participants through a coaching process

PROGRAM ASSETS

Systems Approaches for Healthy Communities

- Offered to both organizations and individuals
  - Organizations
    - Access to online modules
    - Access to two toolkits
    - Access to live instruction/consultations for coaching process
  - Individual
    - Access to online modules
    - Access to live responses from instructors

- Focus on Spectrum of Prevention
- Included in the SNAP-Ed toolkit
- Five self-paced modules that engage participants
    - Self-reflection, interactive and application activities
- 5 CPEUs (Registered Dietitian Nutritionist)
- Cost effective:
    - Group: $4000/200 participants (can be adjusted for size of group)
    - Individual: $75

Website URLs:

Systems Approaches for Healthy Communities Program

- https://extension.umn.edu/nutrition-education/systems-approaches-healthy-communities

SNAP-Ed Toolkit-obesity prevention interventions and evaluation framework and other SNAP-Ed resources and trainings

- https://snapedtoolkit.org/training/online-training/

Z Links: shortened URLs that are useful for social media and other materials that provide engagement metrics.

- z.umn.edu/systemsapproaches
- https://z.umn.edu/sahc

UTM Codes: simple codes that you can add to the end of a URL to track the performance of campaigns and content.

Other assets (flyers, audio files, videos)

- S:\Spectrum-of-Prevention (includes postcard, images, past presentations/publications, etc.)
- Moodle: z.umn.edu/coursesite
- Tech troubleshooting: z.umn.edu/techtroubleshooting

COMPETITION

PSE online trainings featured on SNAP-Ed Toolkit and SNAP-Ed Connection

PSE Training: Making the HEALTHY Choice the EASY Choice–Cornell University

- Audience-SNAP-Ed and EFNEP educators

- Six self-paced modules for individuals
  - No live engagement or coaching
- 12 CPEUs (Registered Dietitian Nutritionist)
- Cost: $100/person

RE-AIM Online Training

- RE-AIM framework:
  - Reach, Effectiveness or efficacy, Adoption, Implementation, and Maintenance.
  - The RE-AIM framework is useful for planning new interventions, adapting existing interventions, and designing evaluations that assess the potential public health impact of interventions.
- The module provides users with examples of real-life application to policy/environmental change interventions.

TARGET AUDIENCE

The program was designed for organizations whose work focuses on health promotion, to help staff understand, reflect, and act on the many factors that influence whether individuals can easily make healthy choices. The initial roll-out was focused on the following target audience levels. SNAP-Ed Implementing Agencies (IAs) will still be the primary focus with only approximately 30 of the 157 IAs completing the course thus far. There will be a more targeted focus to reach the IAs.

Primary:

- SNAP-Ed Implementing Agencies

Secondary:

- State Departments of Health
- State Departments of Education
- State Level Nutrition Networks

Tertiary:

- Public Health and Nutrition Education Professionals and Paraprofessionals (Dietitians, Community Health Workers, Public Health Nurses)
- Cooperative Extension Offices
- Community Groups and Coalitions
- Tribal Organizations
- Universities

OUTREACH STRATEGIES

The UMN goal is to have a more targeted approach to reach the IAs in delivering promotion and key messages about SAHC web-based training.

- **Strategic and targeted to key stakeholders**
  - ASNNA (Association of SNAP-Ed Administrators
  - SNAP-Ed State Agencies (SAs)
  - SNAP-Ed Implementing Agencies (IAs)
  - SNAP-Ed State Coordinators
  - SNAP-Ed LGU PDT
  - FNS Regional Nutritionist/Program Specialist
  - FCS Leaders
  - Food Policy Networks
  - Public Health Professionals
    - APHA (American Public Health Association)
  - Other health professionals

Key Stakeholder/Audience		Channel	Contact	Action Steps	By Whom
SNAP-Ed State Agencies	SNAP-Ed Implementing Agencies	ASNNA ASNNA listserv	You must draft an email and send to the email ASNNA listserv email for them to send out	1. Submit Abstract to present at Annual Conference in February. 2. Email to ASNNA listserv in **February** after the conference and **May** when state SNAP-Ed plans are being written.	
		SNAP-Ed Toolkit	FNS Region Nutritionist/Project Specialist submit on the behalf of the implementing agency.	1. Check websites **Annually** for accuracy of SAHC information displaying on the website. Make sure URLs still work	
		SNAP-Ed Connection			
		SNAP-Ed	snap-	1. Contact by email to inquire how	

		Connection News	edconnection@usda.gov	SAHC can be featured in the newsletter email.	
SNAP-Ed Coordinators (State leadership professionals, FNS regional nutritionist/project specialist)		FNS Region SNAP-Ed calls (mostly likely quarterly)	FNS Nutritionist/Program Specialist	1. Most regions meet at list quarterly, but it will depend on region if outside guests are allowed. 2. MPR region-doesn't allow outside guests.	
LGU SNAP-Ed Coordinators		LGU SNAP-Ed Coordinators listserv (can post directly to listserv)	Lauren Sweeney	1. Possible Agenda Item at PDT Meeting 2. Post directly twice per year after to listserv after meeting with each of the regions	*Trish Olson member of 2021-22 LGU SNAP-Ed PDT
	Extension Regions LGU SNAP-Ed Calls	Each region meets with all LGU SNAP-Ed Coordinators to update them on the committee work happening in the PDT and other SNAP-Ed related activities within their region as defined by Extension not FNS. Lauren Sweeny is lead and would know when all meetings for each region happen. They may change each new PDT year.			
			North Central: Becky Henne Lisa Ross Jennifer McCaffrey	1. Get on a meeting agenda to talk about SAHC. 2. Meetings occur the third Tuesday of every 2 month(s) 3. Note: Becky and her team piloted SACH originally.	
			North East: Gina Crist	1. Get on a meeting agenda to talk about SAHC. 2. Meeting occurs biweekly.	

		Joan Paddock		
		Southern: Sylvia Byrd	1. Get on a meeting agenda to talk about SAHC. 2. Note: Sylvia's team at Mississippi State purchased the program (2019/20)	
		Western: Heidi LeBlanc Katie Panarella	1. Get on a meeting agenda to talk about SAHC. 2. Meetings occur quarterly. 3. Heidi would welcome someone to come and talk about SAHC course.	
SNAP-ED LGU PDT (State Coordinators, Extension Program leaders/SNAP-Ed extension directors, program managers)	SNAP-Ed PDT listserv (can post directly to listserv)	Lauren Sweeney	1. Post directly to listserv twice per year 2. Trish Olson to get SAHC on agenda	
FNS Regional Nutritionist/Program Specialist	Via State Implementing Agency Coordinators or State Agencies	FNS Regional Nutritionist/Program Specialist meet monthly but do not allow outside guest to present	1. IA coordinators or SA would have to tell their FNS Regional Nutritionist/Program Specialist about the program OR 2. They learn about it at ASNNA	
Public Health Professionals	APHA Conference	Abby Gold is Program Planner for the Food and Nutrition Program	1. Submit abstract proposal for October 2021 conference.	Lauren Bohen

State and Local Health Departments	APHA Conference		1. Submit an abstract proposal for October 2021 conference	Lauren Bohen
FCS Leaders	National Association of Family and Consumer Sciences (NEAFCS) eXtension website		1. Submit an abstract proposal for 2021 Annual Meeting (Grand Rapid Michigan) November. 2. Explore featuring SAHC in the Connect Extension newsletter.	
Other health professionals:				
Dietitians	Academy of Nutrition and Dietetics-Dietetic Practice Groups: 1. Hunger and Environmental Practice Group 2. Nutrition Educators for the Public 3. Public Health/Community Nutrition State Dietetic Association Listservs		3. The individual program might appeal to dietitians looking for a cost effective CEU opportunity.	

- **Testimonials**

Have organizations who have already completed the course provide testimonials on the UMN extension SAHC website, program summary, or other promotional materials.

KEY MESSAGES

UMN SAHC team will make four (4) strategic presentations to key stakeholders' groups throughout the year with a follow up communication message provided below.

Stakeholder Presentations:

- National Meetings:
  - Objectives include:
    - Describe the importance of integrating systems approaches with educational strategies
    - Learn about *Systems Approaches for Healthy Communities* program components
    - Summarize the program evaluation results and effectiveness of online professional development for organizations

- IA Coordinator Meetings/Region Meetings:
  - Program Components
  - Implementation
  - Summarize the program evaluation results
  - Cost

Follow-up Communication Email:

[Extension Banner]

[Icons Image]

Systems Approaches for Healthy Communities

Build skills to create lasting community change

The problems facing communities are complex, requiring comprehensive, systems-wide solutions. Does everyone in your organization have the knowledge and skills to integrate direct education with policy, systems, and environmental change approaches?

Systems Approaches for Healthy Communities is a web-based professional development program that helps participants understand and act on factors that influence individuals' ability to make healthy choices.

Why bring the program to your organization? You and your staff will learn:

- Basic terminology.
- Examples of systems-thinking including the Social-Ecological Model, Spectrum of Prevention, and PSE concepts.
- Skills to expand your program across many levels to impact policies, systems, and environments.
- Strategies and tools for strengthening engagement, communicating with partners, and understanding community context.

If you are unable to participate with an organization or group, the program has been adapted for individual participation. Individual participants will work at their own pace and complete self-reflection activities to support learning.

In addition, the program offers 5 hours of continuing education and has been pre-approved by:

- The Commission on Dietetic Registration
- The National Commission for Health Education Credentialing
- The National Board of Public Health Examiners

Program registration is offered on an ongoing basis and can be customized to meet your timeline.

Learn More and Purchase for Your Organization

FUTURE GOALS

- SAHC Project Coordinator
    - Needed to keep project relevant and in front of potential audiences, can prepare action plans for the program and help to build content for future expansion

- Deepen the skills of graduates of SAHC
    - Expand the training to offer more in-depth skills focused on PSE, Social Justice, Food Equity, etc…
- Expand Audience
    - Other extension centers and other professional disciplines
    - Content building from different disciplines to make SAHC relevant to a specific audience.
- SAHC as extension possible revenue source
    - Cost benefit analysis

REFERENCES

Division of Population Health, N. C. (2021, 01 25). *Centers for Disease Control and Prevention*. Retrieved from CDC Healthy Schools: https://www.cdc.gov/healthyschools/tths/guide-to-promote-pd.htm