

Organizational Readiness to Engage in Policy, System, and Environment Changes Supporting Positive Youth Development for Health: Case Studies from the Cooperative Extension System Framed by the Transtheoretical Model

Carol Smathers

Ohio State University Extension

Lisa Washburn

University of Arkansas

Maureen Toomey

University of Idaho Extension

Elaine Johannes

Kansas State University

Anne M. Iaccopucci

University of California

Karen Johnston

University of Delaware

Cooperative Extension's National Framework for Health and Wellness identified Positive Youth Development for Health (PYDH) outcomes at the individual (education) and community (policy, system, and environment) change levels, calling on Extension professionals to integrate public health principles into youth development programs. However, Extension professionals may not be equipped to effectively incorporate these principles and related strategies in the youth development context. An assessment of Extension professionals' readiness to integrate public health approaches, such as community-level change strategies, with youth program efforts suggests these professionals may lack knowledge of practical steps for including policy, system, and environment change methodology into their daily work. Recommendations framed by the transtheoretical model (TTM) to guide Extension in advancing readiness among Extension educators at the organizational level have been developed. However, context-specific examples that illustrate such approaches and show how they fit within youth

Direct correspondence to Carol Smathers at smathers.14@osu.edu

development programs are lacking. This article provides concrete case examples from the Extension system illustrating readiness levels at each TTM stage. Associated recommendations and implications for supporting youth development programs to effectively engage in influencing multilevel change strategies are also provided.

Keywords: transtheoretical model; socio-ecological model; Cooperative Extension; Extension; youth development; policy, system, and environment change; multilevel change; positive youth development for health; Health and Wellness Framework; ECOP Action Teams

Introduction

In 2014, Cooperative Extension's National Framework for Health and Wellness (Braun et al., 2014) set forth youth development objectives that called for Extension professionals to foster community change that supports healthy behaviors in addition to increasing individuals' knowledge and abilities to make healthy choices. Policy, system, and environment (PSE) changes are practical ways to target interventions across multiple levels of ecological models (McLeroy, Bibeau, Steckler, & Glanz, 1988), which illustrate how factors at various levels—individual, interpersonal, organizational, community, and policy—interact to influence behaviors.

Intentional efforts are needed to build organizational capacity for implementing multilevel changes that support youth health. As Extension professionals strive to meet the objectives in the health and wellness framework, they can use the transtheoretical model (TTM) (Prochaska & DiClemente, 1984) as a guide to examine both organizational and individual stages of change and change processes. Identifying organizational readiness using the TTM can help inform steps for advancing adoption of PSE change strategies. This article provides case examples to illustrate programs at various TTM stages along with recommended actions for advancing to subsequent stages.

Applying Public Health Approaches to Youth Development

Youth development experts recommend that positive youth development principles should be considered when planning and implementing health policies, programs, and services (Pittman, Martin, & Yohalem, 2006; Tepper & Roebuck, 2006). Integration of public health principles into Extension programming and other youth development efforts is also recommended as a strategy to reduce risky behaviors and promote healthier alternatives (Besenyi et al., 2014; Brownell, Schwartz, Puhl, Henderson, & Harris, 2009; Fitzgerald & Spaccarotella, 2009). Positive Youth Development for Health (PYDH) is one of six strategic program priorities

included in Extension's National Health and Wellness Framework (Braun et al., 2014), which aims to increase the number of Americans who are healthy at every stage of life. The PYDH strategic program priority area focuses on conditions and actions that support young people's development into competent, caring, and contributing adults while experiencing physical, social, and emotional well-being. The National Framework's logic model specifies two outcome indicators for PYDH (Braun et al., 2014, p. 14):

- PYDH Outcome Indicator #1: Knowledge, ability, and confidence to make healthy choices, leading to individuals and families who demonstrate healthy behaviors.
- PYDH Outcome Indicator #2: Individuals empowered to lead community change, resulting in communities that support healthy lifestyles.

As such, the National Framework is a call to action for Extension professionals to leverage their role as a trusted community resource for youth education in order to support broader population-level change.

The Centers for Disease Control and Prevention's (CDC) socio-ecological model (SEM; CDC, 2010) (Figure 1) offers a useful context for planning effective interventions that create healthier environments and achieve measurable success in the PYDH outcome indicators. The SEM's core tenet is that behaviors and choices are formed through complex interactions of multiple levels of individual and environmental influences: knowledge, attitudes, beliefs, and personality traits at the individual level; social identity and support provided by friends, family, and peers at the interpersonal level; practices and procedures at the organizational level; social networks, norms, and standards at the community level; and local, state, and federal policies and laws at the public policy level (Sallis et al., 2006; Sallis & Glanz, 2009; Sallis & Owen, 2015). Interventions targeting multiple levels of influence across the SEM are recommended to most effectively change behaviors (Sallis et al., 2006; Smathers & Lobb, 2014).

Applying the SEM can help practitioners recognize opportunities where PSE change can enhance Extension youth development program outcomes. For example, a survey of 161 4-H club leaders in one state showed that the majority of clubs were neither allowing time for physical activity nor serving healthy foods and beverages during club meetings (Riemenschneider & Ferrari, 2017). In this situation, education targeting the individual level of the SEM with knowledge and skill building activities may be offered, but appropriate options are not made available to participants. Opportunities for Extension professionals to target multiple levels of the SEM and enhance program outcomes could include modeling healthy behaviors at club meetings (interpersonal), establishing club guidelines for healthy food and physical activity (organizational), offering healthy foods and physical activity at community events (community), and advocating for local, state, and national policies that support healthy behaviors for youth (policy).

Figure 1. Socio-Ecological Model

(Source: CDC, 2010)

Although multilevel interventions can be complex and challenging to evaluate, evidence supporting their use in health behavior promotion and risk prevention activities continues to grow (Brownson & Haire-Joshu, 2006; Capewell, & Capewell, 2017; Han, Lawlor, & Kimm, 2010). National Institutes of Health collaborators concluded that carefully planned and executed multilevel interventions hold promise for reducing obesity in vulnerable populations (Stevens et al., 2017). An evaluation of Shaping Healthy Choices, a multicomponent, school-based obesity prevention intervention, found that reinforcing messages at multiple points of influence could positively affect student body mass index in one school year (Scherr et al., 2017).

With an emphasis on making healthy choices attractive, accessible, and acceptable, the public health construct of PSE change has emerged as a useful basis for positive youth development efforts and Extension programming intended to encourage positive health behaviors (Besenyi et al., 2014; Brownell et al., 2009; Fitzgerald & Spaccarotella, 2009). By shaping laws and guidelines as well as social and physical environments, PSE change efforts support and encourage healthy choices by ensuring that healthy options are increasingly desirable, available, and easily obtainable (Ohio Wellness and Prevention Network, 2012). Rigorous outcome evaluations, such as those in the CDC's (1999) Framework for Program Evaluation in Public Health, suggest PSE changes will lead to improved healthful behaviors (Honeycutt et al., 2015).

Leatherman and McCune (2016) point to shifts in 4-H Youth Development programming away from a traditional focus on educational activities and practice of rewarding professionals for the numbers of individuals reached. Although still predominantly centered on education and curricula success, the list of accomplishments in the 4-H Healthy Living Program National Report 2016 (Leatherman & McCune, 2016) included completing the National 4-H Professional

and Volunteer Development Needs Assessment, creating a 4-H Healthy Events Checklist, and administering a National 4-H Environmental Scan and Evaluability Study. While these accomplishments provide 4-H Professionals with tools needed to move towards a PSE approach, they are not evidence of system-wide programmatic change to engage in multilevel strategies.

As the Extension paradigm shifts, Extension faculty, program staff, and volunteers may need additional knowledge, skills, and resources to support changes to social and physical environments that contribute to good health for youth. For example, one study found that Extension professionals lacked a basic understanding of PSE change (Smathers & Lobb, 2015). Without such an understanding, Extension professionals' implementation of change strategies will be difficult. Among the professional development needs identified by 150 Extension professionals surveyed in the National 4-H Professional and Volunteer Development Needs Assessment were social-emotional health competencies, funding and time resources, and staff and volunteer development (Donaldson, Franck, Toman, & Moody, 2014). Addressing these needs will require both professional development and resource reallocation.

Readiness Assessment

To take a closer look at Extension professionals' readiness to integrate PSE change strategies into youth program efforts, the PYDH Action Team, a national work group comprised of youth development experts assembled to guide implementation of the National Framework's PYDH objectives, developed and conducted a readiness assessment. The Institutional Review Board at the University of Delaware approved the study.

The researchers developed survey questions based on a review of literature and feedback from teams of additional experts. In October 2016, using a chain sampling approach, a survey link was disseminated through existing Extension email lists and newsletters. The survey research methodology is fully described in Smathers et al. (2018).

A total of 379 Extension faculty and staff in a range of program areas from 38 states responded to the survey. Nearly all respondents (92%) indicated they are likely to work with youth within the coming year through an Extension-related program. Respondents reported a limited level of understanding of PSE change, with only one-quarter (25%) indicating a strong understanding of the concept through their response selections of 8 or higher on a 1–10 point scale (10 = highest).

Using a 4-level scale (strongly agree, somewhat agree, somewhat disagree, strongly disagree), just over half of the respondents (52%) somewhat or strongly agreed that they would be comfortable if their supervisor asked them to develop a PSE change plan. A slight majority (55%) strongly or somewhat agreed that PSE change work would represent a "big shift" in their work. Most respondents (80%) indicated a strong willingness to do PSE change work, while a

majority (82%) also strongly or somewhat agreed that educating the community is the most important part of their job. Over two-thirds (69%) agreed that “the way to make change in the world is to change policy,” which indicated that respondents valued PSE change as an effective approach. About one-third (38%) indicated they considered PSE change work to be a fad (ECOP/ESCOP Health Implementation Teams, 2017).

Transtheoretical Model

The range of perceived readiness levels among Extension professionals documented by the 2016 readiness assessment suggests that an approach for advancing capacity is warranted, regardless of the current situation within an organization. The TTM (Prochaska & DiClemente, 1984) may be a useful tool to help Extension professionals examine organizational and individual change and to advance adoption of PSE change strategies. The TTM (Table 1) consists of five stages identified as precontemplation, contemplation, preparation, action, and maintenance.

Ten process of change activities support progress through the TTM’s five stages. Process of change activities and progression through the five stages occur within the context of decisional balance (weighing the pros and cons of change), self-efficacy (confidence in ability to avoid relapse), and temptation (the urge to engage in old behaviors) (Prochaska & Velicer, 1997).

Table 1. Transtheoretical Model Constructs (Based on Prochaska & Velicer, 1997)

Stages of Change	Description	Processes of Change Activities to Move Through Stages
Precontemplation	No intention to act within the next six months; may be uninformed or under-informed about the consequences of the behavior; may have tried and are discouraged	Consciousness raising Dramatic relief Environmental reevaluation Social liberation
Contemplation	Intends to act within the next six months; aware of the pros and the cons of changing; may be ambivalent	Self-reevaluation
Preparation	Intends to act within the next 30 days and has taken some behavioral steps in this direction	Self-liberation
Action	Made specific, overt modifications of lifestyle within the past six months; action is observable	Counter-conditioning Helping relationships Contingency management Stimulus control
Maintenance	Changed overt behavior for more than six months; less tempted to relapse and are increasingly more confident that they can continue their change	

Following are descriptions of characteristics and scenarios that provide context-specific examples of readiness at each stage of change.

Examples of Extension's Readiness Using the Transtheoretical Model

Precontemplation

Description. Precontemplation is characterized by denial, fear, and lack of confidence in the ability to change, with no intent to change behaviors or practices in the next six months (Prochaska & Velicer, 1997). Extension professionals and organizations in precontemplation may be unaware that change is needed or fear that change will have a negative impact on their work. The processes of change most frequently associated with precontemplation include consciousness raising, dramatic relief, and environmental reevaluation. Consciousness raising increases awareness about the causes of and consequences for problem behaviors. Dramatic relief involves producing experiences (e.g., testimonies, awards) that attract others to changes and actions that improve health. Environmental reevaluation is a cognitive and affective assessment of how a behavior establishes an individual as either a positive or a negative role model (Prochaska & Velicer, 1997).

Background. Idaho is consistently among the states with the highest suicide rates. According to the Idaho Department of Health and Welfare (2017), in 2015, Idaho had the fifth highest suicide rate in the U.S., which was 57% higher than the national average. Suicide is the second leading cause of death for Idahoans age 15 to 34 years. Between 2012 and 2016, 105 youth (age 6 to 18 years) died of suicide. A quarter of these youth were 14 years or younger. Based on the 2015 Idaho Youth Risk Behavior Survey (Idaho State Department of Education, 2015), 32% of high school students felt sad or hopeless for two or more weeks; 20% seriously considered attempting suicide; 17% made a plan about how they would attempt; and 10% attempted suicide. Sadly, between autumn 2015 and spring 2016, four Idaho 4-H youth completed suicide.

The Idaho State Office of Suicide Prevention was established in 2016 to help implement a comprehensive Idaho Suicide Prevention Plan (ISPP). The ISPP focuses on youth education, a suicide hotline, and a public awareness campaign. However, Idaho 4-H at that time had not fully connected with external organizations, including the ISPP. 4-H professionals may have been unaware of the role they could play in suicide prevention and lacked the confidence to move toward engagement. This situation suggests that Idaho 4-H Youth Development was at the precontemplation stage of engaging in a statewide suicide prevention effort.

What happened? Following the death of a 4-H youth, Idaho 4-H sponsored five evidence-based trainings for 4-H and other youth professionals to help them recognize and respond to mental health crises in youth. From late 2016 through 2017, 87 individuals were trained. Nearly

half (41) were from University of Idaho (UI) Extension. To entice others to action, a promotional video was produced and shared through newsletters, social media, and emails.

Important roles. The Idaho Extension Director and 4-H Program Director supported the mental health crisis response trainings by providing partial funding and encouraging Extension professionals' participation. The trainings were taught by certified instructors from outside Extension. An Area Extension Educator promoted and facilitated each of the trainings. County-based Extension educators and 4-H staff were encouraged to invite their community partners.

Barriers/challenges. The youth mental health focus of the Idaho 4-H healthy living plan began as a state level directive in response to Idaho's high rate of attempted and completed suicides. However, a formal assessment of Extension's readiness to address the topic was not conducted. Idaho 4-H is a decentralized system with county-based 4-H professionals operating unique programs with selective collaboration within regions and state-based programs. Because the trainings were not county driven, several challenges evolved. Extension professionals did not fully understand the role they could play in addressing youth mental health; thus, they were apprehensive about committing time and recruiting community partners.

Application. To move forward, Extension professionals and programs in precontemplation can raise awareness and understanding of the benefits of PSE change and provide concrete examples of successful programs. Environmental reevaluation may involve taking an honest look at whether Extension practices portray the organization as a positive or negative role model. In this case study, participants increased their understanding of youth mental health (consciousness raising) through training. They reduced anxiety and concern as mental health advocates (dramatic relief), thus decreasing the stigma of suicide, and are now better prepared to be inclusive of mental health awareness in healthy living action planning (environmental reevaluation). By supporting mental health crisis response training, 4-H is positioned to continue partnerships and acquire resources through the Office of Suicide Prevention, while also stepping back to assess county-based needs.

Contemplation

Description. Individuals and organizations in contemplation intend to change in the next six months if they estimate that the benefits outweigh the costs of change (Prochaska & Velicer, 1997). Individuals and organizations progressing from precontemplation through contemplation may use self-reevaluation, consciousness raising, dramatic relief, and/or environmental reevaluation. Self-reevaluation is a reflection of how people see themselves. It entails a cognitive and affective assessment of one's work (Prochaska & Velicer, 1997). In Extension, that might be whether the professional's role in PYDH is that of an educator or as being both an educator and an advocate for community-level change.

Background. According to national health rankings, Cherokee County ranked among the six worst counties in Kansas for health outcomes due to high physical inactivity, low access to exercise opportunities and healthy food, and high food insecurity (County Health Rankings & Roadmaps, 2017). A multilevel approach, including PSE change, was necessary to address these community-wide issues.

Following staffing turnovers in 2015, Cherokee County Extension decision makers hired three Extension professionals to fill those positions. These Extension professionals aimed to address county health outcomes by reforming youth, family, and community programs through joint data-driven planning, implementation, and marketing. This new team was encouraged to emphasize team planning and collaboration across 4-H, Family and Consumer Sciences (FCS), Agriculture and Natural Resources (Ag/NR), and Community Development programming.

What happened? Cherokee County Extension became a comparison site in a multistate food access/health project. The two-year project involved tracking health outcomes for the first year and then implementing PSE strategies the following year. A first effort was to expand a 4-H horticulture project centered on growing tomatoes. The Extension professionals were able to broaden the project's program policies and systems so that youth who were not 4-H members could also participate. This policy shift energized other 4-H projects, increased 4-H membership by 12%, and garnered a state award for best practices and innovation.

Cherokee County Extension's increased awareness of the county's health problems and concerns for the community's youth motivated Extension professionals to work together to plan, implement, and market interdisciplinary Extension health programs. Through outcome-driven programming that emphasized access to locally grown, healthy food, more youth and families joined 4-H; additional funding was secured; more partnerships were established between Extension, schools, businesses, and public health; and changes in Extension programming policies and systems showed how small-scale efforts could improve community health. The county Extension professionals were recognized by the state's Extension system for identifying community needs, implementing PSE change strategies, and expanding local health and wellness coalition education programs. They have inspired others across Kansas to consider doing the same. In early 2017, the Kansas Extension system also modified its annual performance review document to recognize and reward involvement in community collaborations, partnerships and coalitions.

Important roles. County Extension decision makers, including Extension Board members, provided the essential resources and support that Extension professionals needed to begin contemplating new ways to address the county's health. This support was essential to the success of efforts to build health collaborations between the three 4-H, FCS, and Ag/NR Extension professionals in Cherokee County.

Barriers/challenges. Initially, there was hesitancy to share planning, programming, marketing, successes, and (potential) failures across Extension content areas. Extension professionals, supported by Extension Board members, worked together on PSE approaches that were data-driven and acknowledged the unique talents and knowledge of each individual to support self-reevaluation and to raise awareness.

Application. Building a peer support network of early adopters (Rogers, 1962), identifying effective internal and external motivators, and addressing institutional barriers such as workload and lack of administrative support can help organizations in contemplation progress. In this stage, it is important to provide resources and support for adopters and find ways to systematically align current reward systems with the desired public health approaches. However, a lack of motivation, information, or skills; an inadequate reward system; or a perceived conflict between PSE change and traditional approaches could slow Extension's progress toward PSE change. Cherokee County leveraged data to motivate bold decisions (consciousness raising). The hiring of new staff and implementation of new programs and new policies (dramatic relief) led to new strategies and innovations that inspired others towards PSE implementation. Public recognition, awards, and changes to the Kansas Extension system's annual review process provided internal and external motivators for growth in professional programming and personal health (self-reevaluation).

Preparation

Description. In the preparation stage, initial steps have been taken, a plan of action is in place, and change is anticipated within the next month, but individuals and organizations may face a real or perceived lack of support for the change at both the organizational and community levels. Self-liberation, characterized by the belief in one's ability to change and a commitment to action, is a new process of change often employed in this stage (Prochaska & Velicer, 1997).

Background. Rates of childhood obesity and food insecurity in Arkansas are among the highest in the nation (Segal, Rayburn, & Beck, 2017). As a predominantly rural state, social life of residents often revolves around community institutions and clubs. Food is usually present and expected at meetings and events, including regular 4-H club meetings and county youth development events. Despite availability of nutrition education, few counties had healthy meeting guidelines for food provided at club or countywide meetings. Based on author observations while serving as a county Extension agent, cookies, chips, snack cakes, and sugary beverages were typical fare at Arkansas 4-H meetings. Frequently, as the lead organizers of county-level 4-H meetings and providers of refreshments, Extension professionals struggled to model and provide environmental supports for the habits promoted through Extension's educational programs.

What happened? The Healthy Meeting Challenge (HMC) encouraged 4-H clubs in Arkansas to provide healthier snack and beverage options and physical activity opportunities at monthly meetings. Originally developed by Tufts University, the nationally recognized “4th H for Health Challenge” curriculum (Tufts University Friedman School, 2017) was reviewed by a panel of county educators and adapted for the HMC by University of Arkansas Extension faculty. Educators attending a statewide in-service training were introduced to the HMC in December 2015, but rollout was delayed until the following 4-H year, which started in October of 2016. County educators were asked to promote HMC participation to their clubs and were provided marketing materials, including an electronic flier and social media posts.

Participating clubs reported their meeting activities and earned points for a variety of healthy practices in the club setting. Clubs earning the most points were recognized at regional competitions. The HMC operated from the state level, but the program’s coordinators relied on local county Extension agents to promote participation and provide assistance with HMC enrollment, which required registration using a web-based system. The first round of HMC ran from December 2016 through May 2017. The initial round of HMC participation represents preparation-stage actions at the county level. State level coordinators, anxious to initiate the HMC before losing another program year, took action, but did so before most county educators fully bought into the effort.

Of 75 Arkansas counties, 18 (24%) had clubs ($n = 45$) participate in the HMC during the initial round of the program. The highest scoring teams received awards at regional competitions. Although some county agents expressed a desire for adopting guidelines, wide adoption of healthy meeting guidelines has been sparse. Among the participating counties, only three reported using such guidelines.

Important roles. In counties with participating clubs, the local county Extension agent played a key role in promoting HMC involvement to adult leaders and 4-H youth. Buy-in at this level was critical to secure a club’s participation. As the local point of contact for 4-H, the agent determined whether information about the HMC and encouragement to participate were communicated to the club level.

Barriers/challenges. Existing organizational structures presented communication barriers. The HMC had a centralized enrollment and reporting system that functioned within a decentralized 4-H program coordination structure through county offices. HMC information was sent from the state level to agents for distribution to clubs. In most counties, the agent and county office are the conduit through which information from the state level reaches 4-H youth and adult volunteer leaders in the county. If counties or agents were not interested in participating in the HMC or felt they did not have time to adopt for local use, information may not have been shared with clubs or 4-H volunteer leaders.

Application. Extension professionals and organizations in preparation need support to set goals for the ongoing integration of PSE change into their work. It is important that the organizational administration clearly communicates support for PSE work and provides training and mentoring for new Extension professionals in these public health-based approaches. Promoting healthier foods at 4-H meetings from the state level alone is not sufficient. PSE change requires buy-in at multiple organizational levels. While few counties implemented written meeting guidelines, many agents indicated they encouraged adult leaders to provide healthier options and expressed a desire for guidelines in their counties (environmental reevaluation). Feedback suggests some in this group may be primed to take action if provided additional supports, which might include sample guidelines for adoption and the endorsement of guidelines by those at administrative levels. This example emphasizes the importance of progressing through the stages of change sequentially. Rushing the county level through preparation to action did not produce the desired outcomes (self-liberation). Many counties remain in the preparation stage, while others are still in contemplation, despite promotion of healthy meetings from the state level.

Action

Description. The action stage occurs when individuals and organizations engage in new behaviors that have been in place for less than six months. Counterconditioning, stimulus control, contingency management, and healthy relationships are process of change activities that appear during both this action stage and the maintenance stage (Prochaska & Velicer, 1997). The focus during this stage is to learn new behaviors, encourage and reward new behaviors, and build relationships that support the desired behavior.

Background. Kids Count Delaware 2015 reported childhood overweight and obesity rates for ages 2 to 17 at 39.4% for New Castle County, 40.3% for the City of Wilmington, 37.7% for Kent County, and 44.5% for Sussex County (Kids Count in Delaware, 2015).

FCS and 4-H Extension professionals in Delaware had historically worked separately and independently on healthy living program implementation. Since 2007, University of Delaware 4-H had been engaging teen Healthy Living Ambassadors (HLA) to deliver prevention and life skills education with adult 4-H professionals and volunteers to students ages 8 to 12 years. As childhood overweight and obesity rates continued to rise, recognition emerged that action and an organizational shift was required to better serve Delaware youth. With financial support from the Walmart Foundation, the Delaware 4-H and FCS programs used a youth-adult partnership model to educate younger youth about nutrition and fitness, while also training teens as HLAs.

What happened? A collaboration was formed between the Expanded Food and Nutrition Education Program (EFNEP) Extension staff, Supplemental Nutrition Assistance Program Education (SNAP-Ed) Extension staff, 4-H teens, and 4-H Extension professionals. The goal

was to address rising obesity rates by delivering statewide nutrition and fitness programming to younger youth through a partnership between SNAP-Ed and EFNEP staff and 4-H teen HLAs. SNAP-Ed and EFNEP staff were taught principles of positive youth and adult partnerships. 4-H teens were educated on SNAP-Ed and EFNEP curricula. Through this organizational change in program delivery, University of Delaware Extension professionals served new youth audiences with nutrition and fitness education, developed teens as teachers, and enhanced EFNEP and SNAP-Ed staff's understanding of positive youth and adult partnerships.

Important roles. Initially, the state Extension program leaders of 4-H and FCS, the 4-H grants manager, and one Extension professional from Food and Animal Science spearheaded the change to develop the collaboration, curriculum, and funding. By the end of the first summer, all EFNEP and SNAP-Ed staff had worked with teen educators. The training of the state's 11 FCS professionals as adult partners to youth changed the way the organization approached youth development. Prior to this collaboration, 4-H teen development was primarily the responsibility of 4-H professionals. Today, 4-H HLA's development is a collaborative responsibility.

Barriers/challenges. When the partnership was under development, some EFNEP staff expressed concern that the teens would be a burden rather than an asset. To address these concerns, 4-H conducted youth and adult partnership training, provided dressing for success training to the youth, and expanded communication among youth and adults using email, texts, and phone calls between partners prior to an assignment. Adult staff reported that by summer's end, most of the teens were able to facilitate sessions without the adult leading and that teen suggestions for program content and delivery were integrated into the program.

The data from the 2017 Kids Count Delaware showed significant reduction of childhood overweight and obesity rates for youth age 2 to 17 years in the two-year period coinciding with this effort (Kids Count in Delaware, 2017).

Application. During the Action stage, recognition and support can facilitate adoption of new PSE public health approaches. A lack of support and organizational barriers, whether real or perceived, are the primary impediments to maintaining these new behaviors and moving into the maintenance stage. While a few staff initially expressed concern around youth/adult partnerships and appeared to be in a precontemplation stage, most of the staff and 4-H and FCS leadership moved through contemplation and preparation prior to obtaining funds, propelling the team into action. Through training, the remaining staff moved from precontemplation into the action stage as summer began. By summer's end, the entire team accomplished an organizational shift of working closely together (helping relationships). Continuing 4-H and FCS staff collaboration enhanced effectiveness. The team received a regional award for excellence in teamwork in 2017 (contingency management).

Maintenance

Description. The maintenance stage describes behaviors that have been in place for at least six months but less than five years. In maintenance, deliberate action has been taken and an organization is supporting modifications. The process of change activities in maintenance are similar to those in action (Prochaska & Velicer, 1997).

Background. The University of California (UC) 4-H club program is delivered at the local level by volunteers. As volunteers' reasons for participating in the program vary, so do their interests in and knowledge of health programming. Although the national and state level 4-H PYDH programs have identified healthy living as a program priority, this view may not be equally shared at the local level. Extension staff have struggled to gain buy-in from local volunteers in their responsibility for creating organizational change and implementing a healthful 4-H club environment. Recognizing that the availability of sugar-sweetened beverages (SSBs) and high calorie foods contributes to overweight and obesity rates (Park, Sappenfield, Huang, Sherry, & Bensyl, 2010), initial policy change efforts focused on this behavior.

What happened? In an effort to create healthier 4-H club environments with increased availability of water, the UC 4-H Healthy Living Leadership Team developed the UC 4-H Water Policy, which required that drinking water be available at all UC 4-H club meetings, events, and activities. To gain buy-in, the team took an approach that focused on the desired behavior as opposed to removing the unhealthy options. Since the inception of the UC 4-H water policy, the percentage of 4-H meetings and activities that had soda available decreased from 14.7% in 2014 to 13.2% in 2017, as reported by 4-H volunteers and members.

Important roles. In 2009, UC 4-H hired a dedicated staff member to coordinate the statewide Healthy Living efforts. This coordinator built the Healthy Living Leadership Team (HLLT), a team of Extension personnel, volunteers, and members that looked at how to improve the health of 4-H. The HLLT drafted the beverage policy and solicited 4-H volunteer and member feedback prior to seeking approval by the statewide Policy Committee. The HLLT developed the Water for Better Living campaign that drove ongoing state efforts and policy promotion.

Barriers/challenges. The 4-H HLLT draft Sugar-Sweetened Beverage Policy of 2012 required that water be available at all events; allowed only 100% juice, milk, noncaloric drinks, coffee, and tea and restricted regular soft drinks (sodas), sports drinks, energy drinks, vitamin waters, lemonade, punch, other fruit drinks, bottled tea, and coffee drinks. When the draft policy was presented to 4-H staff, adult volunteers, and members, it was met with some resistance. Some volunteers and staff viewed the original draft policy as restrictive and deemed oversight of such a policy as difficult and time consuming. In response to this feedback, the HLLT decided to amend the policy so SSBs were not limited, but the availability of drinking water was required.

Application. During the maintenance stage, individuals and organizations require support to overcome barriers and unanticipated changes. This organizational support is essential for successful long-term integration of PSE changes and public health approaches to PYDH efforts. The original UC 4-H Water Policy was drafted in 2012 and then approved in 2014. Availability of SSBs at 4-H clubs, meetings, activities, and events declined slightly during this time. While the policy itself had some impact, continued promotion of the benefits of the Water for Better Living campaign was also important (counterconditioning). Extension program leaders engaged in relationship-building activities with volunteers and youth involved in the development of the policy and policy promotion (helping relationships). UC 4-H found it particularly helpful to highlight success stories from the county programs, such as the advocacy, funding, and installation of water stations at a local school site (contingency management).

Discussion

Braun et al. (2014) expressed that Extension “can do for the nation’s health what it did for American agriculture” and that “given the national trends in health...it is a critical time to create a new programmatic focus” (p. 2). They contend that Extension’s community presence and local credibility can influence social, economic, and environmental determinants of health (Braun et al., 2014). Achieving a culture throughout which health is a priority demands an all-encompassing community engagement effort that brings together targeted audiences to understand and apply science-based solutions to vexing local problems. It also calls for shared norms, expectations, knowledge, capacities, practices, and behaviors that support optimum health.

Meeting the Positive Youth Development for Health (PYDH) objectives of the Cooperative Extension's National Health and Wellness Framework (Braun et al., 2014) will require an added emphasis on policy, system, and environment (PSE) change strategies while also maintaining traditional approaches. Adjusting professional skill sets and priorities will take time. Extension professionals can use the TTM as a guide to examine both organizational and individual stages of change and change processes.

The case studies above demonstrate that just as Extension professionals utilize the TTM to assess readiness for change in their clients, the same model can help them assess their professional and organizational readiness to implement PSE strategies. Using the TTM to gauge organizational readiness can help provide guidance for the steps necessary for advancing readiness to adopt PSE change strategies. Through the lens of the TTM, Extension professionals can implement PSE strategies that foster partnership development and community engagement while supporting strong educational programs that focus on chronic disease and injury prevention; maternal, child, and family health promotion; farm safety; food safety; and financial wellness, to help protect, promote, and improve the community's health (Elliott & Coates, 2015). The benefit of using the

TTM, a behavior change model that may already be well known to some Extension professionals, is that it provides a familiar and understandable context.

The case studies provide evidence that multilevel change can and does happen in Extension. Successful efforts require time, strong partnerships, organizational champions, embracing new and expanded roles, and rewarding PSE efforts. Extension organizations will move through the stages of change at varying rates, as will individual Extension professionals. It is important to remember that even if an Extension organization is functioning in the action stage, for example, some Extension professionals in the organization may still be functioning at an earlier stage. Incorporating process of change activities that support these individuals is essential to the success of efforts to adopt multilevel programming and PSE approaches in the organization.

Implications for Practice

Extension seeks to improve the lives of Americans through educating youth and adults about research-based information and recommended practices. Extension organizations are encouraged to “practice what they teach” and provide environments that support the recommendations to which Extension ascribes, especially in the areas of health and wellness (Smathers & Lobb, 2018). These areas might include such things as the Dietary Guidelines for Americans (U.S. Department of Health and Human Services and U.S. Department of Agriculture, 2015), beverage choices, physical activity, and obesity prevention.

In order to more effectively address population health through PSE implementation, as well as offer strategic educational programs, we recommend that Extension professionals need to also work with other networks and organizations and across jurisdictions. Extension organizations have a long history of providing effective, evidence-based PYDH programs. Public health organizations have a strong focus and expertise in population-based health improvement strategies such as PSE. Knowledge and use of PSE strategies can provide Extension professionals with a common language and a new set of tools to help them achieve the desired outcomes for the programs they design and facilitate. Extension professionals should explore opportunities to share and leverage resources and knowledge with public health organizations for greater impact of both Extension and public health efforts.

For this review, we applied the TTM to Extension PYDH efforts that have demonstrated some level of success in efforts to implement PSE changes. With the exception of Idaho, the case studies focused on food and beverage choices, physical activity, and obesity prevention. Much of the funding available to Extension organizations for PSE and multilevel interventions is directed toward these outcomes. Expanding PSE interventions to other youth health behaviors is also necessary, and therefore, Extension professionals are strongly encouraged to advocate for funding in additional PYDH focus areas.

Rigorous evaluation of PSE change strategies coupled with education is critically important for the success of Extension programming interventions. Public health tools, like the CDC's Framework for Program Evaluation in Public Health (CDC, 1999) can be helpful in evaluating these efforts. Extension organizations can add to this body of literature by collaborating with a college of public health to evaluate programs using this or other evidence-based evaluation frameworks.

References

- Besenyi, G., Carter, T., Pope, A., Gordon K., Hebda, S., & Kaczynski, A. (2014, March). *Youth advocacy for policy, systems, and environmental changes for healthy eating/active living: Pilot evaluation of the Healthy Young People Empowerment (HYPE) project*. Presented at the Active Living Research Eleventh Annual Conference, San Diego, CA. Retrieved from <http://activelivingresearch.org/youth-advocacy-policy-systems-and-environmental-changes-healthy-eatingactive-living-pilot-evaluation>
- Braun, B., Bruns, K., Cronk, L., Kirk Fox, L., Koukel, S., Le Menestrel, S., . . . Warren, T. (2014). *Cooperative Extension's National Framework for Health and Wellness*. Retrieved from <https://nifa.usda.gov/resource/national-framework-health-and-wellness>
- Brownell, K., Schwartz, M., Puhl, R., Henderson, K., & Harris, J. (2009). The need for bold action to prevent adolescent obesity. *Journal of Adolescent Health, 45*(Suppl. 3), S8–17. doi:10.1016/j.jadohealth.2009.03.004
- Brownson, R. C., Haire-Joshu, D., & Luke, D. A. (2006). Shaping the context of health: A review of environmental and policy approaches in the prevention of chronic diseases. *Annual Review Public Health, 27*, 341–370. doi:10.1146/annurev.publhealth.27.021405.102137
- Capewell, S., & Capewell A. (2017). An effectiveness hierarchy of preventive interventions: Neglected paradigm or self-evident truth? *Journal of Public Health, 1–9*. doi:10.1093/pubmed/fox055
- Centers for Disease Control and Prevention. (1999). Framework for program evaluation in public health. *Morbidity and Mortality Weekly Report, 48*(RR-11), 1–40. Retrieved from <https://www.cdc.gov/mmwr/PDF/rr/rr4811.pdf>
- Centers for Disease Control and Prevention. (2010). *Community Health Assessment and Group Evaluation (CHANGE) action guide: Building a foundation of knowledge to prioritize community needs*. Retrieved from <https://www.cdc.gov/nccdphp/dch/programs/healthycommunitiesprogram/tools/change/pdf/changeactionguide.pdf>
- County Health Rankings & Roadmaps. (2017). *County health rankings*. Retrieved from <http://www.countyhealthrankings.org>
- Donaldson, J., Franck, K., Toman, J., & Moody, T. (2014). Moving beyond the program: Incorporating healthy living behaviors throughout 4-H. *Journal of Extension, 52*(4), Article 4COM2. Retrieved from <https://www.joe.org/joe/2014august/comm2.php>

- ECOP/ESCOP Health Implementation Teams. (2017). *Positive youth development for health final report*. Submitted to the Extension Committee on Organization and Policy.
- Elliott, P. E., & Coates, J., (2015, June). *Healthy outlook: Public health resources for systems transformation*. Retrieved from <https://www.apha.org/-/media/files/pdf/topics/aca/transformation/healthyoutlookcomplete.ashx?la=en&hash=090C2AB36183D804541DA976B9793C47F3A43CC5>
- Fitzgerald, N., & Spaccarotella, K. (2009). Barriers to a healthy lifestyle: From individuals to public policy—An ecological perspective. *Journal of Extension*, 47(1), Article 1FEA3. Retrieved from <https://www.joe.org/joe/2009february/a3.php>
- Han, J. C., Lawlor, D. A., & Kimm, S. Y. S. (2010). Childhood obesity-2010: Progress and challenges. *Lancet*, 375(9727), 1737–1748. doi:10.1016/S0140-6736(10)60171-7
- Honeycutt, S., Leeman J., McCarthy W. J., Bastani R., Carter-Edwards L., Clark, H., . . . Kegler, M. (2015). Evaluating policy, systems, and environmental change interventions: Lessons learned from CDC’s Prevention Research Centers. *Preventing Chronic Disease*, 12(E174), 1–11. doi:10.5888/pcd12.150281
- Idaho Department of Health and Welfare. (2017). *Suicide in Idaho: Fact sheet*. Retrieved from http://www.spanidaho.org/uploads/Fact%20Sheet_August%202017.pdf
- Idaho State Department of Education in cooperation with the Centers for Disease Control and Prevention. (2015). *2015 Idaho Youth Risk Behavior Survey (High School)*. Retrieved from <https://www.sde.idaho.gov/student-engagement/shared/2015-Youth-Risk-Behavior-Survey-Results.pdf>
- Kids Count in Delaware. (2015). *Kids count in Delaware. Families count in Delaware. Fact book 2015*. Newark, DE: Center for Community Research and Service, School of Public Policy and Administration, University of Delaware. Retrieved from <http://www1.udel.edu/ccrs/KCDE2015/mobile/index.html#p=9>
- Kids Count in Delaware. (2017). *Kids count in Delaware. Families count in Delaware. Fact book 2017*. Newark, DE: Center for Community Research and Service, School of Public Policy and Administration, University of Delaware. Retrieved from <https://www.sppa.udel.edu/ccrs/research-data/kids-count-in-delaware>
- Leatherman, J., & McCune, A. (2016). *4-H healthy living program national report 2016*. Retrieved from <https://nifa.usda.gov/sites/default/files/resources/2016%204-H%20Healthy%20Living%20National%20Report-%28003%29.pdf>
- McLeroy, K. R., Bibeau, D., Steckler, A., & Glanz, K. (1988). An ecological perspective on health promotion programs. *Health Education Quarterly*, 15(4), 351-377. doi:10.1177/109019818801500401
- Ohio Wellness and Prevention Network. (2012). *What is ‘policy, system and environmental change’?* Retrieved from http://www.healthpolicyohio.org/wp-content/uploads/2014/01/owpn_psec_factsheet.pdf

- Park, S., Sappenfield, W. M., Huang, Y., Sherry, B., & Bensyl, D. M. (2010). The impact of the availability of school vending machines on eating behavior during lunch: The youth physical activity and nutrition survey. *Journal of the American Dietetic Association, 110*(10), 1532–1536. doi:10.1016/j.jada.2010.07.003
- Pittman, K., Martin, S., & Yohalem, N. (2006). Youth development as a “big picture” public health strategy. *Journal of Public Health Management & Practice, 12*(Suppl.), S23–S25. doi:10.1097/00124784-200611001-00006
- Prochaska, J. O., & DiClemente, C. C. (1984). *The transtheoretical approach: Crossing traditional boundaries of change*. Homewood, IL: Dow Jones-Irwin.
- Prochaska, J. O., & Velicer, W. F. (1997). The transtheoretical model of health behavior change. *American Journal of Health Promotion, 12*(1), 38–48. doi:10.4278/0890-1171-12.1.38
- Riemenschneider, K., & Ferrari, T. M. (2017, May). *Assessing Ohio 4-H club healthy living practices: A survey of Ohio 4-H club leaders*. Poster session presented at the National Health Outreach Conference, Annapolis, MD. doi:10.13140/RG.2.2.29764.63360
- Rogers, E. M. (1962). *Diffusion of innovations* (1st ed.). New York, NY: Free Press of Glencoe.
- Sallis, J. F., Cervero, R. B., Ascher, W., Henderson, K. A., Kraft, M. K., & Kerr, J. (2006). An ecological approach to creating active living communities. *Annual Review of Public Health, 27*, 297–322. doi:10.1146/annurev.publhealth.27.021405.102100
- Sallis J. F., & Glanz, K. (2009). Physical activity and food environments: Solutions to the obesity epidemic. *Millbank Quarterly, 87*(1), 123–154. doi:10.1111/j.1468-0009.2009.00550.x
- Sallis, J. F., & Owen, N. (2015). Ecological models of health behavior. In K. Glanz, B. K. Rimer, & K. Viswanath (Eds.), *Health behavior: Theory, research, and practice* (5th ed., pp.43–64). San Francisco, CA: Jossey-Bass.
- Scherr, R. E., Linnell, J. D., Dharmar, M., Beccarelli, L. M., Bergman, J. J., Briggs, M., . . . Zidenberg-Cherr, S. (2017). A multicomponent, school-based intervention: The shaping healthy choices program improves nutrition-related outcomes. *Journal of Nutrition Education and Behavior, 49*(5), 368–379. doi:10.1016/j.jneb.2016.12.007
- Segal, L. M., Rayburn, J. & Beck, S. E. (2017). *The state of obesity 2017*. Retrieved from <https://stateofobesity.org/files/stateofobesity2017.pdf>
- Smathers, C., & Lobb, J. (2014). *Policy, system and environmental change*. Retrieved from <https://ohioline.osu.edu/factsheet/CDFS-2>
- Smathers, C., & Lobb, J. (2015). Extension professionals and community coalitions: Professional development opportunities related to leadership and policy, system, and environment change. *Journal of Extension, 53*(6), Article 6FEA1. Retrieved from http://www.joe.org/joe/2015december/pdf/JOE_v53_6a1.pdf
- Smathers, C., & Lobb, J. (2018). Practicing what we teach: Adherence to healthy meeting guidelines at Extension meetings and events. *Journal of Human Sciences and Extension, 6*(1), 98–112. Retrieved from https://docs.wixstatic.com/ugd/c8fe6e_63a78961460d4395bb3265f9c43f3490.pdf

- Smathers, C., Toomey, M., Washburn, L., Johnson, K., Iaccopucci, A., Johannes, E., & Ravola, M. (2018). *Positive youth development for health: Extension's readiness for multilevel, public health approaches*. Manuscript submitted for publication.
- Stevens J., Pratt C., Boyington, J., Nelson, C., Truesdale, K., Ward, D. S., . . . Murray, D. M. (2017). Multilevel interventions targeting obesity: Research recommendations for vulnerable populations. *American Journal of Preventive Medicine*, 52(1), 115–124. doi:10.1016/j.amepre.2016.09.011
- Tepper, K. H., & Roebuck, J. (2006). Building partnerships for youth: An online youth development resource center. *Journal of Extension*, 44(2), Article 2TOT4. Retrieved from <https://www.joe.org/joe/2006april/tt4.php>
- Tufts University Friedman School. (2017). *4th H for Health curriculum*. Retrieved from <https://extension.umaine.edu/4h/wp-content/uploads/sites/49/2017/09/4th-H-for-Health-Curriculum.pdf>
- U.S. Department of Health and Human Services and U.S. Department of Agriculture. (2015). *2015 – 2020 Dietary Guidelines for Americans* (8th ed). Retrieved from <https://health.gov/dietaryguidelines/2015/guidelines/>

Carol Smathers, MS, MPH, is an Assistant Professor and Ohio State University Extension Assistant Professor. She provides leadership to programming and research projects related to creating healthier environments for youth, including “Water First for Thirst,” Ohio Farm to School, and Ohio 4-H Healthy Living Advocates.

Lisa Washburn, DrPH, is an Associate Professor – Health with the University of Arkansas Cooperative Extension Service. She provides leadership for youth and adult healthy living program development and evaluation in Arkansas.

Maureen Toomey, MEd, is an Assistant Professor and Area Youth Development Educator with the University of Idaho Extension. She directs healthy living initiatives focused on nutrition, well-being, and youth leadership, including 4-H Food Smart Families, youth mental health, and healthy living teen advocates.

Elaine Johannes, PhD, is an Associate Professor and Extension Specialist in Youth Development at Kansas State University. She provides leadership to Kansas 4-H Healthy Living and Extension's Grand Challenge for Health initiatives, serves on the state's Maternal and Child Health Council for the KS Dept. of Health and Environment and teaches graduate level adolescent health courses.

Anne M. Iaccopucci, MA, is the 4-H Healthy Living Academic Coordinator with the University of California. She is responsible for statewide healthy living program planning, curriculum development, and evaluation. Her academic foci are youth development, health, and well-being.

Karen Johnston, MBA, is an Extension Educator III with the University of Delaware. She provides statewide leadership in programming for healthy living and community development through teen health ambassadors while overseeing financial and program deliverables on all 4-H grants in Delaware.

Acknowledgements

The authors offer many thanks to Cheryl Graffagnino, Local Food System Strategies Coordinator, Columbus Public Health, Columbus, Ohio, for content contributions and technical editing.

The authors also thank Dorina M. Espinoza and Marcel Horowitz, University of California-Davis, Agriculture & Natural Resources, for the development and analysis of the UC 4-H Water Policy, and Allison Karpyn, University of Delaware, Center for Research in Education and Social Policy, for her technical assistance with data collection.

The authors wish to acknowledge Sekai Turner, Martha Ravola, and Matthew Devereaux for serving with them on the ECOP Positive Youth Development for Health Action Team.