

9-16-2021

## 4-H Student Nutrition Advisory Councils Support Positive Youth Development and Health Outcomes Among Underserved Populations

Shannon Klisch

*University of California Cooperative Extension - San Luis Obispo & Santa Barbara, [sklisch@ucanr.edu](mailto:sklisch@ucanr.edu)*

Katherine E. Soule

*University of California, Agriculture and Natural Resources Division, [kesoule@ucanr.edu](mailto:kesoule@ucanr.edu)*



This work is licensed under a [Creative Commons Attribution-NonCommercial-Share Alike 4.0 License](https://creativecommons.org/licenses/by-nc-sa/4.0/).

---

### Recommended Citation

Klisch, S., & Soule, K. E. (2021). 4-H Student Nutrition Advisory Councils Support Positive Youth Development and Health Outcomes Among Underserved Populations. *The Journal of Extension*, 59(3), Article 19. <https://doi.org/10.34068/joe.59.03.19>

This Research in Brief is brought to you for free and open access by the Conferences at TigerPrints. It has been accepted for inclusion in The Journal of Extension by an authorized editor of TigerPrints. For more information, please contact [kokeefe@clemson.edu](mailto:kokeefe@clemson.edu).

---

## 4-H Student Nutrition Advisory Councils Support Positive Youth Development and Health Outcomes Among Underserved Populations

### Cover Page Footnote

This program would not be possible without the commitment and dedication of student leaders; CalFresh Healthy Living, University of California Cooperative Extension Community Education Specialists; partnering school personnel; and partnering 4-H personnel and volunteers. In addition, we want to acknowledge Barbara McKnelly for contributing to the evaluation summary, analysis of survey data and updates to IRB Protocols. This program was supported by funding from the United States Department of Agriculture's Supplemental Nutrition Assistance Program, the University of California 4-H Youth Development Program, National 4-H Council, and the Counties of San Luis Obispo and Santa Barbara.

**Authors' Note** We, the authors of this paper, are White women. Training in intercultural competencies and anti-racism has increased our awareness of our biases and privileges, as well as supported our efforts to address inequities. Nonetheless, the lack of diversity in our program leadership is a systemic barrier to addressing health disparities. We have benefited from "racially segregated school contexts" and live in "racially isolated, mono-cultural existences" (Evans-Winters & Hines, 2019, p. 6). Our positioning within our institutions and communities gives us opportunities that individuals of other races/ethnicities may not be readily granted, including the ability to hire bilingual, bicultural staff and conduct programming in schools with predominately White educators and predominately Latinx student communities. We state this to draw attention to the tension that exists in our work: As White women in academia, we operate within systems that reinforce and celebrate Whiteness, while we also seek to dismantle systemic, environmental, and policy barriers that negatively influence youth and families of color (predominately Latinx, in our community sites) through the 4-H SNAC Club Program.

# 4-H Student Nutrition Advisory Councils Support Positive Youth Development and Health Outcomes Among Underserved Populations

SHANNON KLISCH<sup>1</sup> AND KATHERINE E. SOULE<sup>1</sup>

AUTHORS: <sup>1</sup>University of California Cooperative Extension – San Luis Obispo & Santa Barbara.

**Abstract.** 4-H SNAC Clubs engage youth in low-income schools with majority Latinx enrollment in leadership activities to increase schoolwide health and wellness. 4-H SNAC Clubs aim to develop youth health leaders, establish youth-adult partnerships, and increase access to 4-H in Latinx communities. Outcomes related to healthful living and positive youth development were assessed using the Teen Teacher Retrospective Survey (n=59) across five 4-H SNAC Clubs. Results show positive outcomes related to self-reported health behaviors for students and their families and leadership development. 4-H SNAC Clubs can increase access to 4-H among Latinx youth and support healthier communities through the Supplemental Nutrition Assistance Program – Education programming.

## INTRODUCTION

Positive youth development (PYD) programs have been shown to achieve significant and beneficial effects related to psychological adjustment, academic achievement, self-perception, and emotional stress (Ciocanel et al., 2017). Successful PYD programs recognize the potential in youths and create supportive and empowering environments, provide activities for youths to build their skills, and offer opportunities for youths to broaden their horizons (Roth & Brooks-Gunn, 2003).

In Cooperative Extension, 4-H youth development (4-H) is the primary PYD program; however, historically, youths of color have been less likely to participate in 4-H (Hamilton et al., 2014; Smathers et al., 2019). Goals toward increasing equitable access to 4-H are reflected in the

4-H Strategic Plan (National Institute of Food and Agriculture, 2017), which envisions that by 2025, 4-H will reflect the population demographics, vulnerable populations, diverse needs, and social conditions of the U.S.

Barriers to participation in 4-H and other PYD programs among underserved communities include lack of awareness about programs, lack of affordability, conflicting schedules with parents' work, distance and lack of transportation, and perceived exclusion (Avent & Jayaratne, 2017). However, previous research has shown that offering tailored, site-based youth development programs can help Extension reach underserved youths (Skuzza, 2004).

The 4-H Student Nutrition Advisory Council club program (4-H SNAC; Fabregas Janeiro et al., 2019; University of California Cooperative Extension, n.d.) was developed to engage youths from low-income schools with majority Latinx enrollment in nutrition and health leadership. 4-H SNAC is a collaboration between two University of California Cooperative Extension (UCCE) programs: 4-H and the Supplemental Nutrition Assistance Program Education (SNAP-Ed). The goals of 4-H SNAC are to (a) develop youth leaders in nutrition and physical activity to create healthful schools and communities, (b) establish positive youth-adult partnerships to improve youth outcomes related to health and academics, and (c) increase access to 4-H among underserved Latinx communities. The program incorporates 4-H and SNAP-Ed curricula, leadership development, health advocacy skills (Klisch & Soule, 2018), and school wellness (Klisch & Soule, 2019a).

In this paper, we examine the nutrition and PYD outcomes reported by a cohort of youths participating in 4-H SNAC.

## METHODS

We implemented 4-H SNAC in five elementary schools across two counties during academic year 2018–2019. Community education specialists from UCCE (specialists), funded jointly through SNAP-Ed and 4-H, led the recruitment and facilitation of 4-H SNAC. We recruited fifth- and sixth-grade youths

primarily through classroom announcements, and all youths who met criteria were included (see Figure 1). Two specialists facilitated each 4-H SNAC meeting for a minimum of 1 hour per week from October through May, with time off for school holidays and conferences. All 4-H SNAC clubs had at least one adult per every 10 youths. All specialists had experience and expertise in nutrition and food safety and received additional training in youth engagement, cultural responsiveness, and 4-H PYD tools and methods.

Throughout the school year, 4-H SNAC youth leaders (youth leaders) were invited to participate in additional programming outside their afterschool meetings, including a 6-hour leadership training and culinary academy (Klisch & Soule, 2019b). At all school sites, youth leaders were involved in leading, supporting, or maintaining environmental changes on their campuses. At three of the schools, youth leaders were involved in designing, building, or maintaining their school garden, and at all five schools, youth leaders collaborated with cafeteria staff to create changes to the lunchroom environment to encourage peers to select and eat healthful foods. All youth leaders were offered opportunities to teach nutrition and/or cooking lessons to other youths and community members based on their interests and availability.

To assess self-reported PYD outcomes and health behaviors after participation in 4-H SNAC, specialists administered the Teen Teacher Retrospective Survey in May 2019 at all five clubs with all youth leaders in attendance on the day of administration. Specialists read the consent letter aloud, and youth leaders completed the survey independently. Evaluation procedures were reviewed and approved by institutional review at the University of California, Davis.

## SURVEY TOOL

The Teen Teacher Retrospective survey is based on the 4-H Common Measures Teen Teacher Survey (Retrospective) (Lewis et al., 2015). The survey includes five sections: (a) Food choices, (b) Engagement, (c) Leadership skills, (d) Open-ended perceptions, and (e) Demographics. Sections 1 and 2 include questions for which youth leaders indicated their level of agreement with statements about their experiences in the program and behaviors using a 4-point scale from *strongly agree* to *strongly disagree*. One subset of questions in Section 1 included the option to select *not applicable*.

Section 3 included retrospective pre–post questions for which youth leaders self-rated their skills at the end of the intervention, thinking about themselves *before* and *after* the program on a 4-point scale from *excellent ability* to *no ability*. Retrospective pre–post survey questions are frequently used to measure outcomes in self-reported behavior changes in Extension programs (Rockwell & Kohn, 1989), and some evidence suggests that they provide a more accurate measure

of preintervention behavior, may reduce response-shift bias (Allen & Nimon, 2007), and can be effectively administered with youths (Young & Kallemeyn, 2019).

In Section 4, youth leaders were asked to respond to two open-ended questions: “What was the best part of participating as a teen teacher or mentor in this program?” and “What could be done to make your experience as a teen teacher or mentor even better?”

## ANALYSIS

Researchers analyzed quantitative survey data by using SPSS version 25. For the nonretrospective questions, researchers used descriptive statistics, placing participant responses into frequency tables and locating the mode. Researchers looked at both percentages and numbers of students selecting each response on the 4-point scale, and for further analysis, researchers also collapsed the 4-point scale to identify areas where the most youths agreed or disagreed. For the retrospective pre–post questions in Section 3, differences in mean “*before*” and “*after*” ratings were analyzed by using paired *t*-tests. Only surveys with both a “*before*” and “*after*” rating were included in the analysis, and a *p*-value of less than 0.05 was interpreted as significant.

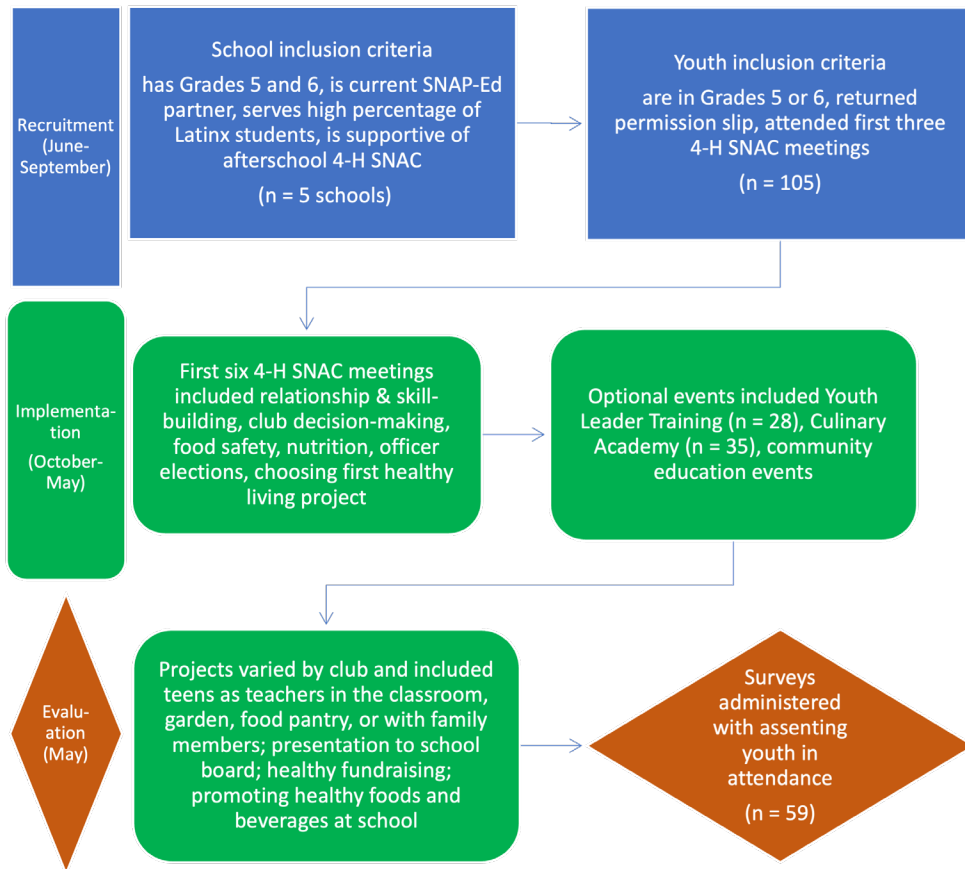
For the open-ended questions, researchers used a general inductive approach (Thomas, 2006) to identify frequent or significant themes and gain a wide understanding of all perceived program effects reported by youth leaders. Researchers exported data into a spreadsheet for initial reading and then highlighted phrases or themes that appeared multiple times while keeping a count of how frequently phrases appeared to get an understanding of whether the experience was more widespread or unique to specific youths. Researchers condensed themes into broader categories and then discussed findings with specialists until agreement was reached on interpretation of the results.

## RESULTS

Fifty-nine youth leaders completed the Teen Teacher Retrospective, and distribution of responses approximately mirrored overall enrollment in each of the clubs (see Figure 2). Most respondents identified as Hispanic or Latino (78%) and female (52%), although 34% of respondents did not indicate their gender.

Most youth leaders (see Table 2) reported that as a result of participating in 4-H SNAC, they make healthful food choices (88%), eat more fruits and vegetables (74%), and eat less junk food (58%). Family outcomes reported by most included that their family has purchased (80%) and prepared (78%) healthier foods. In addition to nutrition behaviors, youths reported PYD outcomes responding that because of participating in 4-H SNAC, they can make a difference in

# 4-H Student Nutrition Advisory Councils Support Positive Youth Development



**Figure 1.** 4-H Student Nutrition Advisory Council (4-H SNAC) flowchart of participation.

their community (86%), are more confident in helping others (90%), and are more confident in themselves (76%).

For engagement during the program, youth leaders reported that in 4-H SNAC, dedicated adults supported them as a teen teacher (92%) and provided ongoing training and support throughout the program (93%), and that they felt “set up” for success (79%).

In addition, we observed statistically significant increases between before and after self-ratings for all five leadership skills (see Table 3).

Forty-eight youths responded to the open-ended, qualitative questions. Researchers categorized the experiences that youths valued most into four categories: (a) opportunities to contribute, (b) opportunities for personal growth, (c) relationships, and (d) activities. Opportunities to contribute included themes of helping others (10 youths) and teaching others (6 youths). One youth shared, “The best part of being a teen teacher or mentor is that you’re helping.” Opportunities for personal growth included themes of learning leadership skills (10 youths) and learning how to cook or make food (4 youths). One youth wrote, “I got to learn leadership[, which]

will help me teach skills to others.” Relationship themes included interacting with kids (3 youths), interacting with the specialists (2 youths), and interacting with each other (2 youths). For activities, themes included saying the pledges (2 youths), hosting food tastings in the cafeteria (2 youths), and cooking (4 youths). Another youth wrote, “I think the best part of participating is that we got to have fun and cook/make great foods.”

Researchers categorized youth responses about improvements to 4-H SNAC into themes of (a) providing more of what is already offered, (b) making changes to what is offered, and (c) making no changes. For the first theme, youths wrote that they wanted more opportunities to cook, present and/or teach, and be physically active. One youth expressed, “It’s already very good, but having a few more events.” For the theme of changes, youths recommended changing the recipes that they prepared and having more opportunity to select their own recipes. Related to the theme of no changes, 17 youth leaders reported that they would not make any changes to the club. One youth wrote, “Nothing could make my experience even better[;] it was perfect.”

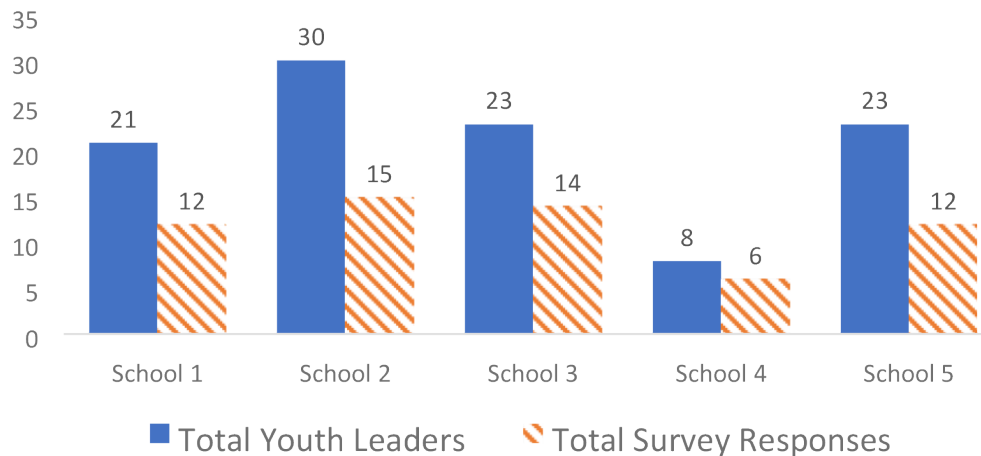
**Table 1.** Responses by Frequency for Self-Reported Health Behaviors and Engagement

<b>Section 1 Health Behaviors</b>					
<i>As a result of participating in the Program,</i>	<b>Strongly Agree n (%)</b>	<b>Agree n (%)</b>	<b>Disagree n (%)</b>	<b>Strongly Disagree n (%)</b>	<b>Not Applicable n (%)</b>
I think about what foods my body needs during the day	7 (12%)	<b>43 (75%)</b>	4 (7%)	—	3 (5%)
I make healthy food choices whenever I can	11 (19%)	<b>40 (69%)</b>	6 (10%)	—	1 (2%)
I eat more fruits and vegetables	12 (21%)	<b>31 (53%)</b>	11 (19%)	1 (2%)	3 (5%)
I eat more whole grains	5 (9%)	<b>33 (58%)</b>	15 (26%)	—	4 (7%)
I eat less junk foods	6 (10%)	<b>28 (48%)</b>	17 (29%)	6 (10%)	1 (2%)
I drink less soda	20 (34%)	<b>20 (34%)</b>	13 (22%)	4 (7%)	1 (2%)
I drink more water	<b>33 (57%)</b>	19 (33%)	5 (9%)	1 (2%)	—
<i>Because of this Program . . .</i>	<b>Strongly Agree n (%)</b>	<b>Agree n (%)</b>	<b>Disagree n (%)</b>	<b>Strongly Disagree n (%)</b>	
My family has purchased healthier foods	12 (21%)	34 (59%)	10 (17%)	2 (3%)	
My family has prepared healthier foods	11 (19%)	34 (59%)	13 (22%)	—	
I learned cooking skills	<b>37 (65%)</b>	16 (28%)	4 (7%)	—	
I use cooking skills to prepare food at home	20 (35%)	23 (40%)	10 (18%)	4 (7%)	
I wash my hands frequently	<b>41 (71%)</b>	14 (24%)	3 (5%)	—	
<b>Section 2 Engagement</b>					
<i>Because of this Program . . .</i>	<b>Strongly Agree n (%)</b>	<b>Agree n (%)</b>	<b>Disagree n (%)</b>	<b>Strongly Disagree n (%)</b>	
I can make a difference in my community through community service	13 (22%)	<b>38 (64%)</b>	7 (12%)	1 (2%)	
I gained skills though serving my community that will help me in the future	20 (34%)	<b>32 (55%)</b>	5 (9%)	1 (2%)	
I taught others	11 (19%)	<b>34 (58%)</b>	13 (22%)	1 (2%)	
I acted as a mentor to others	9 (15%)	<b>34 (58%)</b>	13 (22%)	3 (5%)	
I am more confident in helping others	25 (42%)	<b>22 (48%)</b>	5 (8%)	1 (7%)	
I am more confident in myself overall	<b>23 (39%)</b>	22 (37%)	10 (17%)	4 (7%)	

# 4-H Student Nutrition Advisory Councils Support Positive Youth Development

**Table 1.** (continued)

Section 2 Engagement (continued)				
During the Program . . .	Strongly Agree n (%)	Agree n (%)	Disagree n (%)	Strongly Disagree n (%)
There were dedicated adults who supported me as a teen teacher	26 (44%)	28 (48%)	4 (7%)	1 (2%)
I received ongoing training and support throughout the program	21 (36%)	34 (58%)	3 (5%)	1 (2%)
The program made sure I had everything I needed to be a successful youth leader	23 (39%)	30 (51%)	6 (10%)	—
I received recognition and reward for my teaching efforts	16 (28%)	29 (50%)	10 (17%)	3 (5%)
I felt “set-up” for success by adults running the program	16 (28%)	30 (52%)	11 (19%)	1 (2%)
I received feedback on how well I was doing as a teacher	9 (16%)	41 (71%)	5 (9%)	3 (5%)



**Figure 2.** Participation in SNAC and survey response by school.

**Table 2.** Retrospective Reporting of Leadership Skills Before and After Participating in SNAC

Statements	Before Mean rating	After Mean rating	Difference
I can lead group discussions. <sup>a</sup>	1.07	1.91	0.84*
I can work as a team member. <sup>a</sup>	1.6	2.39	0.79*
I can teach others. <sup>b</sup>	1.43	2.18	0.75*
I can speak before a group. <sup>b</sup>	1.09	1.75	0.66*
I can plan programs. <sup>a</sup>	.95	1.61	0.66*

<sup>a</sup> n = 57

<sup>b</sup> n = 56

\* p-value <.001

## DISCUSSION

These data point to the effectiveness of 4-H SNAC in supporting the development of student leadership to create healthful schools and communities through positive youth-adult partnerships and increasing access to 4-H in low-income and predominately Latinx communities. The following are implications for Extension professionals interested in implementing 4-H SNAC.

### DEVELOPING YOUTH LEADERS

4-H SNAC is a promising intervention to support PYD and health-related outcomes in historically underserved communities. Outcomes include improvements in self-reported health behaviors and self-confidence. In addition, youths self-reported positive shopping and food-preparation behaviors for their families, suggesting that youths can serve as effective educators for their families. This conclusion is supported by other research showing that educating youths can influence family behaviors (Boudet et al., 2016; Damerell et al., 2013). Moving forward, one of the goals emerging from this project includes increasing family engagement in 4-H SNAC activities. These outcomes support the positive development of youths and youth leadership.

### ESTABLISHING YOUTH-ADULT PARTNERSHIPS

A majority of youth leaders reported that they believed that specialists were dedicated and supportive. 4-H SNAC Club adult leaders should be trained in youth-adult partnerships to develop caring and connected relationships with youth participants. Beyond this, 4-H SNAC youth leaders should have opportunities to learn from adults who share similar backgrounds, life experiences, languages, and culture or who are trained to work in ways that avoid microaggressions and be culturally responsive. One barrier encountered early in this intervention was the need to expand the division's recruitment policies to be able to intentionally hire bilingual, bicultural staff. Implementing this intervention with staff—who deliver 4-H programming at a local level, which historically has been delivered by program volunteers—is a limitation that Extension professionals may need to address, particularly because increased staffing requires additional program funding.

### INCREASING EQUITABLE ACCESS TO 4-H

Since implementation of the first 4-H SNAC program in 2015–2016, there has been an increase in Latinx youth enrollment in 4-H in San Luis Obispo and Santa Barbara counties. In program year 2014–2015, total Hispanic or Latinx enrollment for both counties was 8,788 youths, compared to 12,052 in 2018–2019. This represents a 37% increase in Hispanic or Latinx enrollment.

4-H SNAC was imagined as a collaborative project to engage youths in low-income, majority Latinx communities in building skills and confidence to promote and advocate for health. It was also designed to create institutional change within Extension through expanding program delivery models to be more inclusive of underrepresented youths in 4-H and to provide a mechanism for youths to influence and affect SNAP-Ed programming. To that effort, many institutional barriers remain—for example, a considerable amount of 4-H enrollment paperwork is not always available in languages used by families at home. Further work is needed to examine these barriers and work with policy makers to create institutional changes informed by the experiences of youths and communities.

Youth readiness researchers (Krauss et al., 2016) have discussed the importance of removing institutional barriers that limit opportunities for vulnerable youths. However, they have posited that “problem-free is not fully prepared” and that we cannot wait until barriers are removed before focusing on the positive development of youths. Youths must also be engaged in owning and seeking out supports and opportunities to thrive in the situations they are currently in.

4-H SNAC clubs are one strategy to increase equitable access to 4-H among underserved, Latinx communities. During one program year, several youth leaders asked the specialist whether they would start a club at their middle school and expressed concern that they would not have a 4-H SNAC club after graduation from sixth grade. Future program expansion into middle and high school would potentially allow more continuity for these PYD outcomes to grow along with greater positive impacts to the health of communities.

## CONCLUSION

Overall, 4-H SNAC is one program that has the potential for developing student leaders to increase community health and advance equitable 4-H access among Latinx youths. Over the next 5 years, 4-H SNAC is being expanded into new communities through a multistate grant award (information about this grant is available in Children, Youth, and Families at Risk Sustainable Community Projects at <https://nifa.usda.gov/program/children-youth-and-familiesrisk-cyfar>). Future research will include evaluating policy, system, and environmental changes as well as beginning assessment of long-term health impacts for participants and their communities.

## ACKNOWLEDGMENTS

This program would not be possible without the commitment and dedication of student leaders; CalFresh Healthy Living, University of California Cooperative Extension Community



## 4-H Student Nutrition Advisory Councils Support Positive Youth Development

Education Specialists; partnering school personnel; and partnering 4-H personnel and volunteers. In addition, we want to acknowledge Barbara MckNelly for contributing to the evaluation summary, analysis of survey data, and updates to IRB protocols. This program was supported by funding from the U.S. Department of Agriculture's Supplemental Nutrition Assistance Program, the University of California 4-H Youth Development Program, the National 4-H Council, and the counties of San Luis Obispo and Santa Barbara.

### REFERENCES

- Allen, J., & Nimon, K. (2007). A review of the retrospective pretest: Implications for performance improvement evaluation and research. *Workforce Education Forum*, 34, 36–56. [https://www.researchgate.net/publication/236784060\\_A\\_review\\_of\\_the\\_retrospective\\_pretest\\_implications\\_for\\_performance\\_improvement\\_evaluation\\_and\\_research](https://www.researchgate.net/publication/236784060_A_review_of_the_retrospective_pretest_implications_for_performance_improvement_evaluation_and_research)
- Avent, M. D., & Jayaratne, K. S. U. (2017). Factors limiting youth participation in 4-H and other youth development programs in underserved communities. *Journal of Extension*, 55(4). <https://tigerprints.clemson.edu/joe/vol55/iss4/14/>
- Boudet, H., Ardoin, N. M., Flora, J., Armel, K. C., Desai, M., & Robinson, T. N. (2016). Effects of a behaviour change intervention for Girl Scouts on child and parent energy-saving behaviours. *Nature Energy*, 1(8). <https://doi.org/10.1038/NENERGY.2016.91>
- Ciocanel, O., Power, K., Eriksen, A., & Gillings, K. (2017). Effectiveness of positive youth development interventions: A meta-analysis of randomized controlled trials. *Journal of Youth and Adolescence*, 46(3), 483–504. <https://doi.org/10.1007/s10964-016-0555-6>
- Damerell, P., Howe, C., & Milner-Gulland, E. J. (2013). Child-orientated environmental education influences adult knowledge and household behavior. *Environmental Research Letters*, 8(015016). <https://doi.org/10.1088/1748-9326/8/1/015016>
- Fabregas Janeiro, M. G., Worker, S. M., & Soule, K. E. (2019). *Toolkits for engaging Latino youth in 4-H programs*. <http://anrcatalog.ucanr.edu>
- Hamilton, S., Northern, A., & Neff, R. (2014). Strengthening 4-H by analyzing enrollment data. *Journal of Extension*, 52(3). <https://archives.joe.org/joe/2014june/a7.php>
- Klisch, S. & Soule, K. E. (2018). *4-H building health advocacy skills project sheet*. University of California Agriculture and Natural Resources. <http://4h.ucanr.edu/files/255391.pdf>
- Klisch, S. & Soule, K. E. (2019a). *4-H school wellness project sheet*. University of California Agriculture and Natural Resources. <https://ucanr.edu/sites/UC4-H/files/307346.pdf>
- Klisch, S., & Soule, K. E. (2019b, June 25). UCCE programming increases student leadership for healthy outcomes. *UC Delivers*. <https://ucanr.edu/blogs/blogcore/postdetail.cfm?postnum=30623>
- Krauss, S., Pittman, K. J., & Johnson, C. (2016). *Ready by design: The science (and art) of youth readiness* [Policy brief]. The Forum for Youth Investment. <https://forumfyi.org/knowledgecenter/ready-by-design-the-science-and-art-of-youth-readiness/>
- Lewis, K. M., Horrillo, S. J., Widaman, K., Worker, S. M., & Trzesniewski, K. (2015). National 4-H common measures: Initial evaluation from California 4-H. *Journal of Extension*, 53(2). <https://archives.joe.org/joe/2015april/rb3.php>
- National Institute of Food and Agriculture, National 4-H Council, Cooperative Extension. (2017). *Strategic plan: 4-H Youth Development A 2025 Vision*. [https://nifa.usda.gov/sites/default/files/resources/National 4-H Strategic Plan 2017.pdf](https://nifa.usda.gov/sites/default/files/resources/National%204-H%20Strategic%20Plan%202017.pdf)
- Rockwell, S. K., & Kohn, H. (1989). Post-then-pre evaluation. *Journal of Extension*, 27(2). <https://archives.joe.org/joe/1989summer/a5.php>
- Roth, J. L., & Brooks-Gunn, J. (2003). What exactly is a youth development program? Answers from research and practice. *Applied Developmental Science*, 7(2), 94–111. [https://doi.org/10.1207/S1532480XADS0702\\_6](https://doi.org/10.1207/S1532480XADS0702_6)
- Skuza, J. A. (2004). 4-H site-based youth development programs: Reaching underserved youth in targeted communities. *Journal of Extension*, 42(1). <https://archives.joe.org/joe/2004february/iw4.php>
- Smathers, C., Toomey, M., Washburn, L., Johnston, K., Iacopucci, A., Johannes, E., & Ravola, M. (2019). Positive youth development for health: Extension's readiness for multilevel public health approaches. *Journal of Extension*, 57(1). <https://archives.joe.org/joe/2019february/a1.php>
- Thomas, D. R. (2006). Method notes: A general inductive approach for analyzing qualitative evaluation data. *American Journal of Evaluation*. <https://doi.org/10.1177/1098214005283748>
- University of California Cooperative Extension, San Luis Obispo and Santa Barbara Counties. (n.d.). *Student Nutrition Advisory Council (SNAC) Clubs*. [http://cesanluisobispo.ucanr.edu/uccalfreshslob/Youth\\_Development\\_\\_Student\\_Nutrition\\_Advisory\\_Councils/](http://cesanluisobispo.ucanr.edu/uccalfreshslob/Youth_Development__Student_Nutrition_Advisory_Councils/)
- Young, J., & Kallemeyn, L. (2019). Testing the retrospective pretest with high school youth in out-of-school time programs. *Journal of Youth Development*, 14(1), 216–229. <https://doi.org/10.5195/jyd.2019.635>