

# Enhancing healthy behaviors with in-person, remote and hybrid versions of the Stanford Youth Diabetes Coaches Program (SYDCP)

Ashini Srivastava MBBS MPH<sup>1</sup>, Liana Geffer MD MPH<sup>1</sup>, Nancy Morioka-Douglas MD MPH<sup>1</sup>, Can Angela Jiang MD<sup>1</sup>, Eunice Rodriguez DrPH<sup>4</sup>

<sup>1</sup>Division of Primary Care and Population Health, Stanford University School of Medicine, <sup>4</sup>Division of General Pediatrics, Stanford University School of Medicine



## Background

Underserved and vulnerable youth disproportionately affected by school closures during the pandemic were offered the SYDCP through in-person, remote or hybrid approaches at partnering high schools

## Community Partners

1. California Area Health Education Center; Central Valley Health Network, Sacramento, CA  
+ 7 high schools in low-income areas of Central Valley, CA
2. Stanford-O'Connor Family Medicine Residency Program, San Jose, CA  
+ 1 high school in low-income area of San Jose, CA
3. Community Health Engagement and Outreach, University of Missouri  
+ 4 high schools in low-income areas of Missouri
4. Family Medicine Center, University of Alabama at Birmingham, Huntsville, AL  
+ 1 high school in low-income area of Alabama

## Objectives

To enhance health behaviors of high school students in low-income areas using different delivery modes of the SYDCP: in-person, remote or hybrid during the pandemic.

## Project Description

Health professional trainees taught healthy high school students **techniques to enhance healthy behaviors**, and to **become coaches for family members** with diabetes through 8 weekly hour-long classes using the validated SYDCP curriculum. Classes were taught either **in person, remotely or in hybrid mode** (students accessing classes online while attending school in person) in 2020 and 2021. 262 students participated in the program, and of those 179 completed pre- and post-tests (68%). A total of 115 respondents completed the program remotely, 39 in-person, and 25 in hybrid mode. All **pre and post surveys included questions on eating habits and physical activity**. Questions on eating habits (adapted from YRBS) and physical activity questions from PROMIS youth surveys were added in 2021 (N=79). We assessed self-reported changes on healthy behaviors using paired t tests and linear regression analysis using SPSS version 27.

## Outcomes

## Outcomes

- All 179 respondents **SIGNIFICANTLY** improved daily consumption of fruits and vegetables and physical activity for 60 minutes/day (Table 1)
- 79 respondents who were asked additional questions on physical activity **SIGNIFICANTLY** improved other exercise behaviors (Table 1)
- All 179 respondents **SIGNIFICANTLY** improved health knowledge, family communication, self-esteem, self-efficacy, problem solving, and ability for stress reduction (results not shown here)
- Data analysis included **t-tests and linear regression models** comparing difference in pre and post test scores with **program type** as independent variable while controlling for baseline score, grade, and gender. **There were no statistically significant differences in outcomes based on type of program**

Figure 1: Participant Demographics

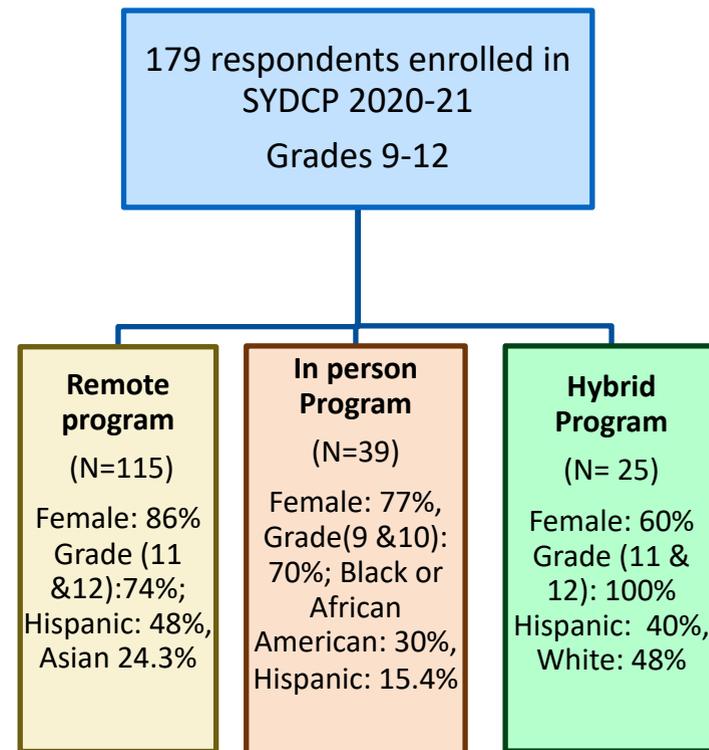


Table 1: Change in respondents' health behaviors after program participation in combined sample and by program

Health Behavior	All Combined N=179	Remote N=115	In-person N=39	Hybrid N=25
	Mean difference (p value)			
Cups of fruits and vegetables <sup>1</sup>	.369 (p<.000)	.304 (p=.001)	.308 (p=.057)	.760 (p=.005)
60 minutes of Physical activity <sup>2</sup>	.486 (p=.001)	.357 (p=.059)	.590 (p=.046)	.920 (p=.054)
Health Behavior	All combined (N=79)	Remote N= 15	In-person N=39	Hybrid N=25
Exercise so hard that body got tired <sup>3</sup>	.443 (p=.01)	.000 (p=1.00)	.359 (p=.133)	.840 (p=.008)
Exercise hard for 10 minutes or more <sup>4</sup>	.671 (p<.000)	.200 (p=.71)	.718 (p=.002)	.880 (p=.017)
Exercise so much that you breathed hard <sup>5</sup>	.291 (p=.073)	.200 (p=.695)	.128 (p=.491)	.600 (p=.05)

<sup>1</sup> Stanford Mind and Body Lab, <sup>2</sup> Youth Risk Behavior Survey, <sup>3-5</sup> PROMIS Youth Physical Activity Questionnaire

## Lessons Learned

We successfully adapted SYDCP for flexible delivery options based on the needs expressed by our community partners. Program benefits were perceived by our partners during school closures in the pandemic

## Recommendations

School-based health promotion programs delivered by in-person, remote or hybrid modes can significantly increase adoption of healthy behaviors among underserved youth. This could be scalable and sustainable in a variety of settings

## Acknowledgements

Funding received from Anonymous donors, the Bohlen Stanford Youth Diabetes Coaching Program Grant and R. Martin Chavez