

*Health promotion interweaving: Designing health promotion interventions in context via youth voice and community partnerships*

Andrew Springer, DrPH

Associate Professor, Health Promotion & Behavioral Sciences

UTHealth School of Public Health-Austin/ Dell Center for Healthy Living

Dell Center for Healthy Living Webinar Series

July 20, 2021

# Today's Session

- Place, settings & health: *The need for environmental change theory and practice-based methods*
- Environmental Asset Mapping *and* Health Promotion Interweaving into Environments & Settings
- Youth-led Community Health Learning Initiative: *Co-learning with stakeholders for environmental change*
- Stronger Austin: *Interweaving Fitness Classes into Community Settings*

# Place, Settings & Health

---

# PLACE: The Association Between Income and Life Expectancy in the United States, 2001-2014

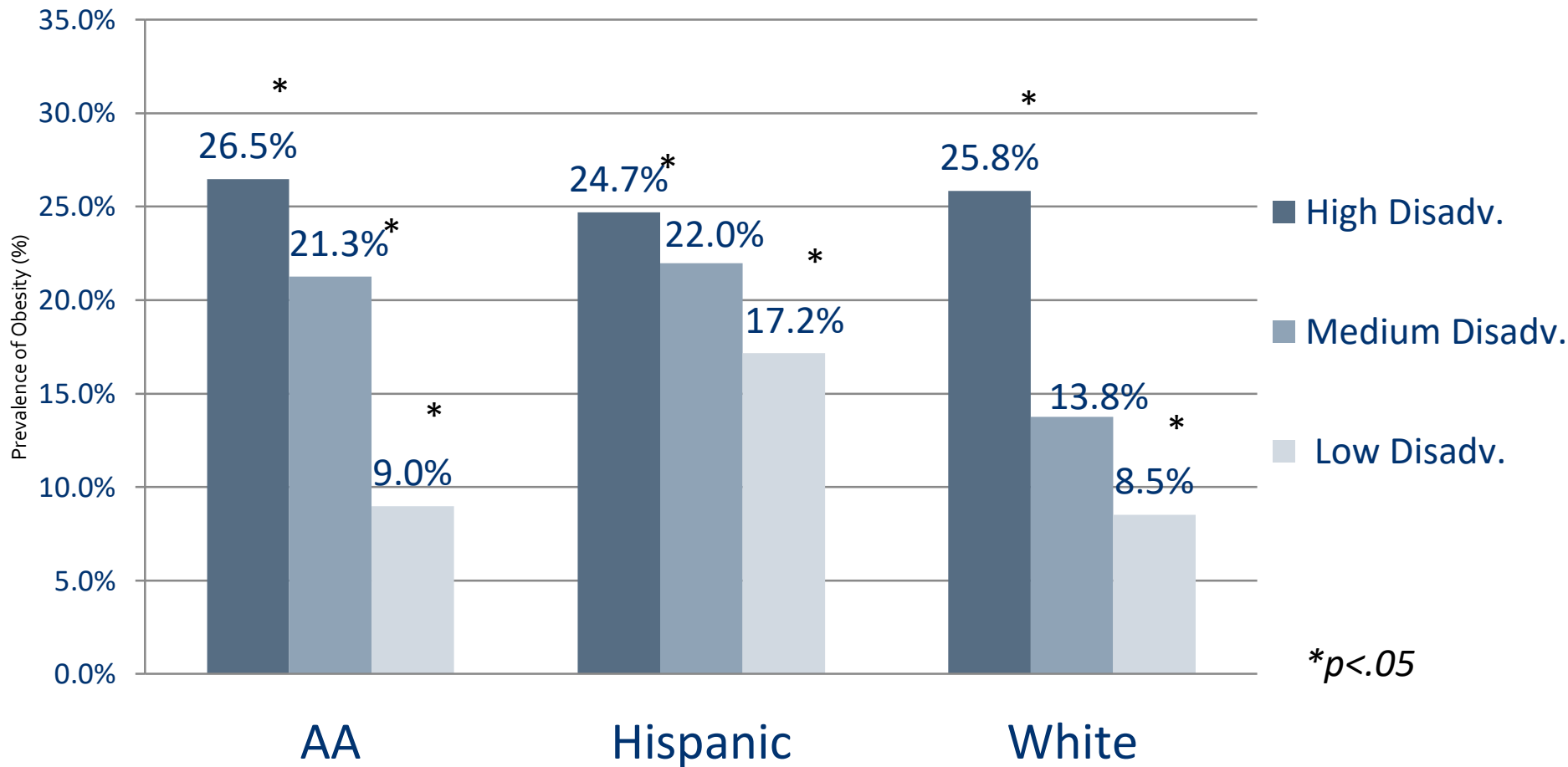
## Key Findings

- 1) Higher income = more years of life  
Gap: 14.6 years (men) y 10.1 years (women)  
between top 1% vs. bottom 1% income earners
- 2) Inequality in life expectancy increased between 2001-2014  
~2-3 yrs: top 5% income vs..32 (male) .04 female)  
yrs: bottom 5%
- 3) Life expectancy varied by geogr. area for low-income individuals
  - *Healthy living-related differences* (smoking, physical activity, obesity)
  - *Geographic characteristics*: higher college, immigrants, and gov't social expenditures.
  - *It didn't have to do with*: access to health services, income inequality...

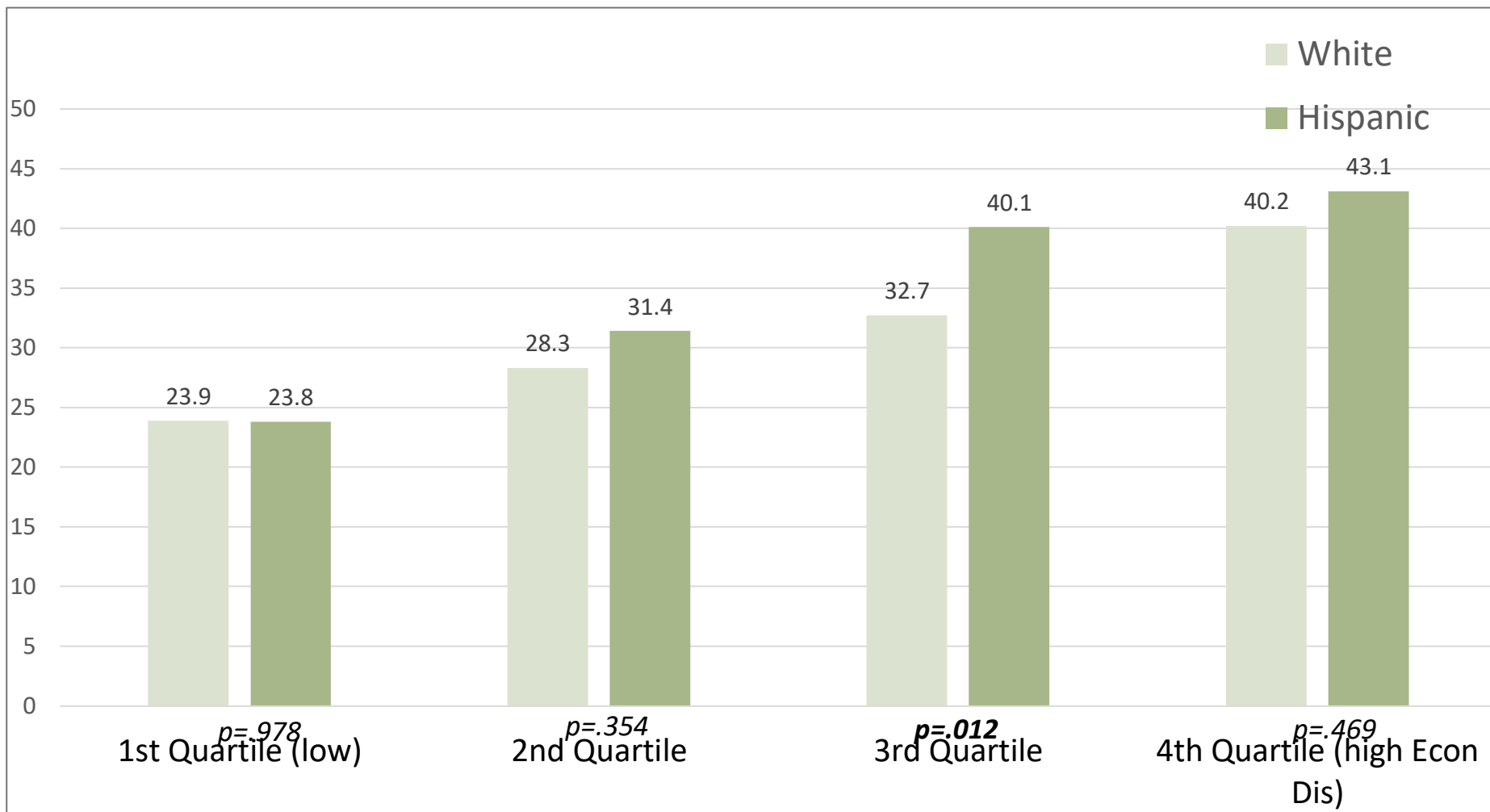


*Where you live (area characteristics) and individual behaviors= how long you live...*

# SETTINGS: Obesity in 8<sup>th</sup> grade students by School Economic Disadvantage (n=2682), *Central Texas '09*



**SETTINGS:** E-cigarette susceptibility (%) by White and Hispanic 6<sup>th</sup> graders, stratified by low to high school economic disadvantage - Central Texas (*n*=3,647), *CATCH My Breath Study*, 2017



# How do we harness the ‘space outside the individual’ for health promotion?



‘There is nothing more practical than a good theory’.

\*Phrase attributed to Kurt Lewin, German-American psychologist, known as one of the modern pioneers of social, organizational, and applied psychology.

- Hawe (2015): Limited effects of community risk factor reduction interventions (e.g. Stanford Heart Disease Prevention Project)= a.) failure to address context; b.) application of individual-level beh. change theory to comm. & systems level processes.
- Moore & Evans (2017): Over-reliance on individual-level theorizing & application of ‘off-the-shelf’ theories (e.g., TTM, TPB, SCT )
  - ✓ *Safety blanket*: just apply and our interventions will be impactful = false assurances that interventions will be more impactful with applying a popular theory
  - ✓ *Not always targeting the right mechanisms*: some evidence that individuals already have high motivation/attitudes for a given behavior
  - ✓ *“Blinkers”*: prevent us from fully understanding the context or other mechanisms that shapes health and behavior while guiding us toward individual-level – and short-term- solutions

- Focus on Context! *Need for environmental & pop. health theory & chge. methods*
- “Thinking people within systems” who know context better than outsiders: *Importance of indigenous knowledge & co-creating interventions*
- New Conceptualization of Fidelity: *Function vs. form*

# Environmental Asset Assessment & Health Promotion Interweaving into Environments and Settings

---



# Assessing Environmental Assets for Health Promotion Program Planning: *A practical framework for health promotion practitioners*

## Aims

1.) To explore a basic *environmental asset* assessment framework guided by a ‘*settings and environments framework*’ and principles from the field of implementation science

2.) To illustrate the application of an *environmental asset* approach using examples from the scientific literature & health promotion practice field.

## Applying Theory to Asset Assessment

### Social-Ecological Theory:

Environments/settings influence health and behavior “...shaped by where we live, study, work, pray and play” (CDC, 2017).

### Impl. Science & Systems Science:

a.) understanding context for health improvement  
b.) coupling/ embedding intervention w/ context (Hawe et al., 2009, ‘16)

Environmental Asset: “Any aspect of the multiple environments that surround individuals (e.g., policy, social, information and physical) that can be harnessed toward promoting the health of individuals and populations.” (\*Building from CDC Definition of “Community Asset”)

# Environmental Asset Mapping Framework



## Settings

*What are the settings that can be harnessed to reach the priority population?*

Example: *Promotion of child physical activity among children living in X community.*

Key settings for children in X community include:

1. School
2. Out-of-school (OST) programs
3. Church
4. Neighborhood
5. Com. recreational organizations



*What are envir. assets within settings?*

## Policy Environment

Example: *Child Out-of-School Program*

- Frontline staff code of conduct
- OST program family agreements
- OST district level policy
- Schedule that includes minutes of re

## Social/Cultural/Org. Environ.

Example: *Child Out-of-School Program*

- In-service staff traini
- Student talent+
- Student+
- partners

## Inf

Example: *Child Out-of-School Program*

- Parent bulletin board
- Parent flyer/newsletter
- School website
- OST program webpage

## Physical Environment

Example: *Child Out-of-School Program*

- Cafeteria
- Gym
- School garden
- Playgrounds & field
- Tables/wall space

Interactions of Influences!



*Partic. inquiry*

# Health by Design: Interweaving health promotion into environments and settings

## *Health promotion interweaving into context:*

Designing health promotion interventions (strategies, practices, programs & policies) to fit within, complement, and build from existing settings and environments.

- “Coupling” & “Embedding” (Hawe et al. ‘09; May et al.’16)
- ✓ Embraces an indigenous health intervention development perspective: Interventions build from site-specific knowledge, practices and values (Miller & Shinn, 2005)
- ✓ Moves from a conceptualization of context as a backdrop to intervention, to one that recognizes context as integral to the intervention design



**Aim:** To explore theoretical and practice-based *interweaving concepts & methods* in relation to:

- *the policy environment*
- *the information environment*
- *the social/ organiz. environment*
- *the physical environment*

# Interweaving health promotion into the... Policy Environment

(Interweaving concept: “Health In all Policies”)

## School Schedules (Texas)

*CATCH Middle School Project* (Springer, Kelder et al., '13) created an “open gym” policy during school, resulting in increased opportunities for PA.



## Campus Improvement Plans (Texas)

*Texas Action for Healthy Kids*: Successfully inserted increased policies and practices for physical activity and healthy eating in CIPs in 10 central TX middle schools. (PI: Michelle Smith; Kelder et al., 2012)



*Texas Action for Healthy Kids*

# Interweaving health promotion into the... Information Environment

(“Environmental Print”)

## Electric Bills and Physical Activity (Brazil)

- *Agita Paulo Program*: No funds required; reached 7 million Sao Paulo residents (Matsudo et al., 2002).

## Marijuana Use Prev. in M.S. Students (U.S.)

- Slater et al. (2006): Marijuana prev. messages: book covers, tray liners, rulers, lanyards, T-shirts & network of nonprofit organizations to spread messaging

• *Intervention students*: <use at 2 year follow-up vs. schools with classroom curriculum (n>4,000 middle school students; 16 communities)

(“Behavioral Journalism”)

## PA & Healthy Eating (TX/Mexico Border)

- *Tu Salud ¡Sí Cuenta!* Role model stories inserted into drive-time and morning radio, TV spots, newspapers
- *Increased FV & PA* (Reininger et al., 2015)



# *Interweaving health promotion into...* Social/Organizational Environment

*(“Appropriable Org./Common Agenda” &  
“Mobilizing Social Support”)*

## Cafeteria workers & children’s fruit and vegetable consumption (Minnesota)

- 5-A-Day Cafeteria Power Plus : Verbal encouragement from cafeteria workers resulted in increased consumption of F/V (Perry et al., 2004).



# Interweaving health promotion into the...

## Physical (Built) Environment

(“Structural Redesign”)

### Reorganizing the cafeteria serving line

- Literature review= increased *selection and consumption of healthier foods* (Frerichs et al. ‘15)



(“Shared Use”)

### Schoolyards & Physical Activity (New Orleans)

- Schoolyards activated for afterschool PA w/adult supervision. Also resulted in increased child PA in neighborhood (Farley et al., 2007).



(“Facilitation”; “Shared Use”)

### “Shot for a shot” night in bars in Louisiana (04/21)

“Some are opting to get the COVID-19 shot at bars instead of vaccination sites: *‘Every idea is worth considering’*”



Youth-led Community Health Learning  
Initiative: *Co-learning with community  
stakeholders for environmental change*

---



# Youth-led Community Health Learning Initiative

## Background

- Health Departments & Federally Funded Hospitals: *CHA/CHIPs required for accreditation/ ACA*
- Austin/Travis County CHA/CHP: *Opportunity for Comm.-specific CHA/CHIPs & youth voice*

## Aims

- 1.) Identify health needs and assets to inform health planning efforts for Del Valle & Montopolis comms.
- 2.) Build skills and capacity of young people in implementing comm. health assessment of health issues identified by youth

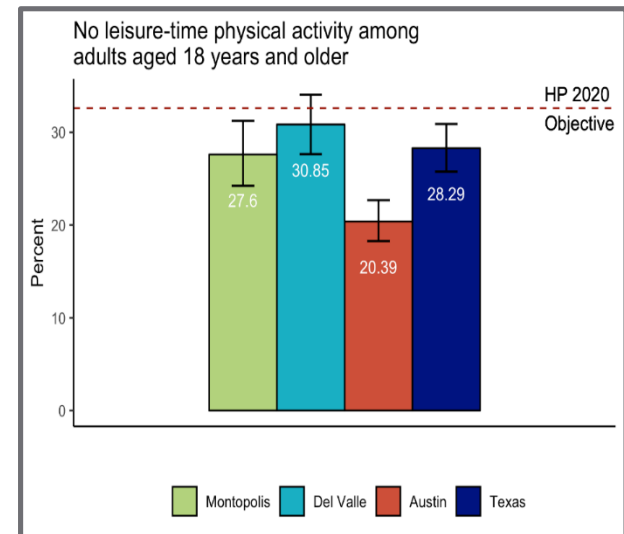
## Core Components

- ✓ Comm. Health Indicator Analysis
- ✓ Youth-led Community Health Asses.
  - *Del Valle High School (n=19) (Spring 2019)*
  - *SAFE- Montopolis (n=12) (Summer 2019)*

**Funding:** City of Austin/Austin Public Health

## Community Health Advisory Committee

- Austin Parks & Rec
- Austin Public Health
- Children's Optimal Health
- Del Valle High School
- Dell Medical School
- SAFE Expect Respect
- Travis County HHS
- UTHealth SPH





# PhotoVoice

“Health Eating – NOT”

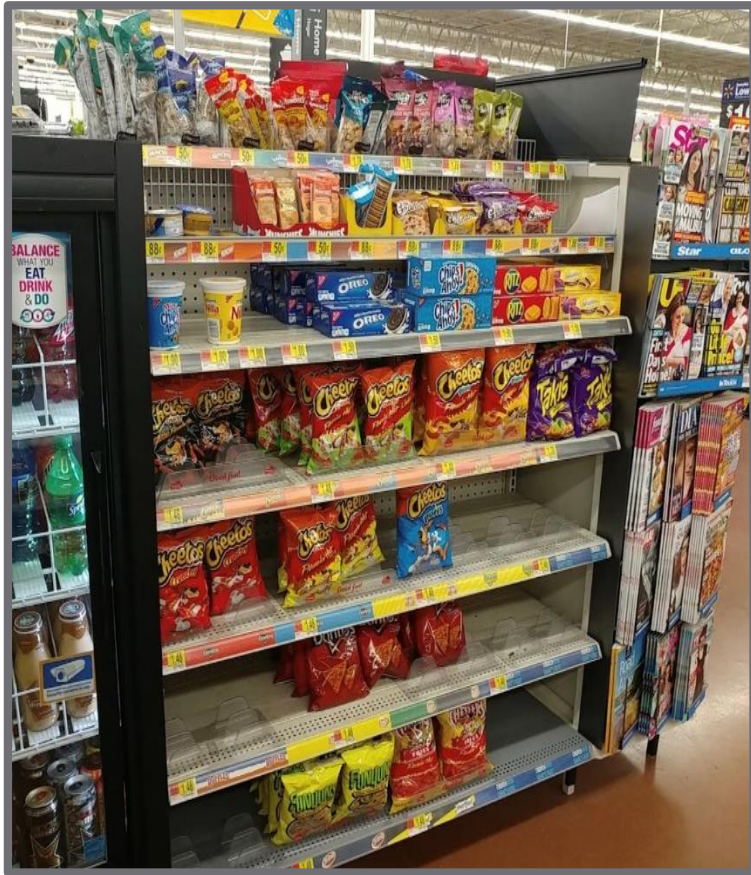


Figure 7. "Healthy eating - NOT" (local convenience store). YLCHLI Youth Co-Investigators, Del Valle, Spring 2019

## Framing Questions

- Why is (health topic) a problem in your community?
- What in your community could prevent (health topic)?
- What are ways we can promote (health topic) in your community?
- What are resources/strengths in your comm. that can help teens make healthy choices for (health topic)?

### Analysis: *SHOWeD method*

S - What do you SEE? What is the first thing you notice?

H – What is really HAPPENING?

O - How does this relate to OUR lives? Make it personal.

W – WHY does this condition EXIST?

WHERE did this issue come from?

D - What are some things we can DO about it?

## *Healthy Eating* *(Social/Org. Environment)*

What are resources/strengths in your community that can help teens make healthy choices around healthy eating?

"A way to help them make the choice of healthy eating is by not having much junk foods close to them, and giving them more options of healthy items. Having more fruits & veggies in small containers for them to grab instead of a bag of chips, you can spice up fruits - it's better to have a fruit than a bag of chips." -Youth Co-Investigator, Del Valle.



# *Physical Activity*

## *(Physical Environment)*

“In Del Valle, there aren’t much resources for us to actually get out and do things that are active. Although we do have a lot of open land, that isn’t always a reason for us to go outside. Most of us don’t have time due to having jobs or not enough time in the day; another reason being that there’s not much we can do with what we have around us.” – *YLCHLI Youth Co-Investigators, Del Valle, Spring 2019.*



*“This picture shows a dog running outside. This picture relates to our life because the majority of us have a pet. I took this picture because I think if we could have a dog park with animal activities, this can promote physical activity by people getting their exercise and moving around with their pet.” – YLCHLI Youth Co-Investigators, Del Valle*

# Access to Health Services and Reproductive & Sexual Health (Social/Org. Environment)



*"...In this picture it shows how obtaining health care is far away from our community (distance). The stethoscope isn't focused due to people as well not focusing on their own health as they should....The open space in the picture also shows how our community does have plenty of space for a healthcare facility to take place, but issue is there's no change being done." –Youth Co-Investigators, Del Valle*



*"This picture shows a Planned Parenthood [clinic] that is hidden. The connection is that talking about sex is hidden, and sex is a thing that happens naturally when people are ready. Teens should know the resources if they should choose to have sex. If some of our resources are hidden, how are we going to know what we want to do safely if we don't have them available to us."*

*–Youth Co-Investigators, Montopolis*

# Community Sharing of Findings!

- ✓ *Community Showcase Event- Del Valle High School*
- ✓ *Children's Optimal Health Board of Directors Meeting*
- ✓ *Austin/Travis County CHA/CHIP Steering Committee*
- ✓ *Community Showcase Event – SAFE Alliance*
- ✓ *StoryMap! Thank you COH!*



*Community showcase presentation- Del Valle High School, May 1, 2019 (YLCHLI, 2019)*



*YLCHLI Co-Investigators presenting findings at Children's Optimal Health Board Meeting- St. David's Foundation, Austin, May 10, 2019 with YLCHLI Facilitators Randy Randolph (far left), Allison Marshall (far right), and Del Valle High School Teacher Miguel Delgado-Ochoa (center) (YLCHLI, 2019)*



## Implications/Impact

- *Feasibility: HS & Comm Orgs as venues for youth-led CHA/CHIP*
- *Locally informed/actionable comm. health improvements*
- *Del Valle Healthy Adolescent Project (3-year OPA grant)*

*StoryMap! <https://arcg.is/jrmKn>*

Stronger Austin

---



# Interweaving adult fitness classes into community settings via Stronger Austin's community partnership model

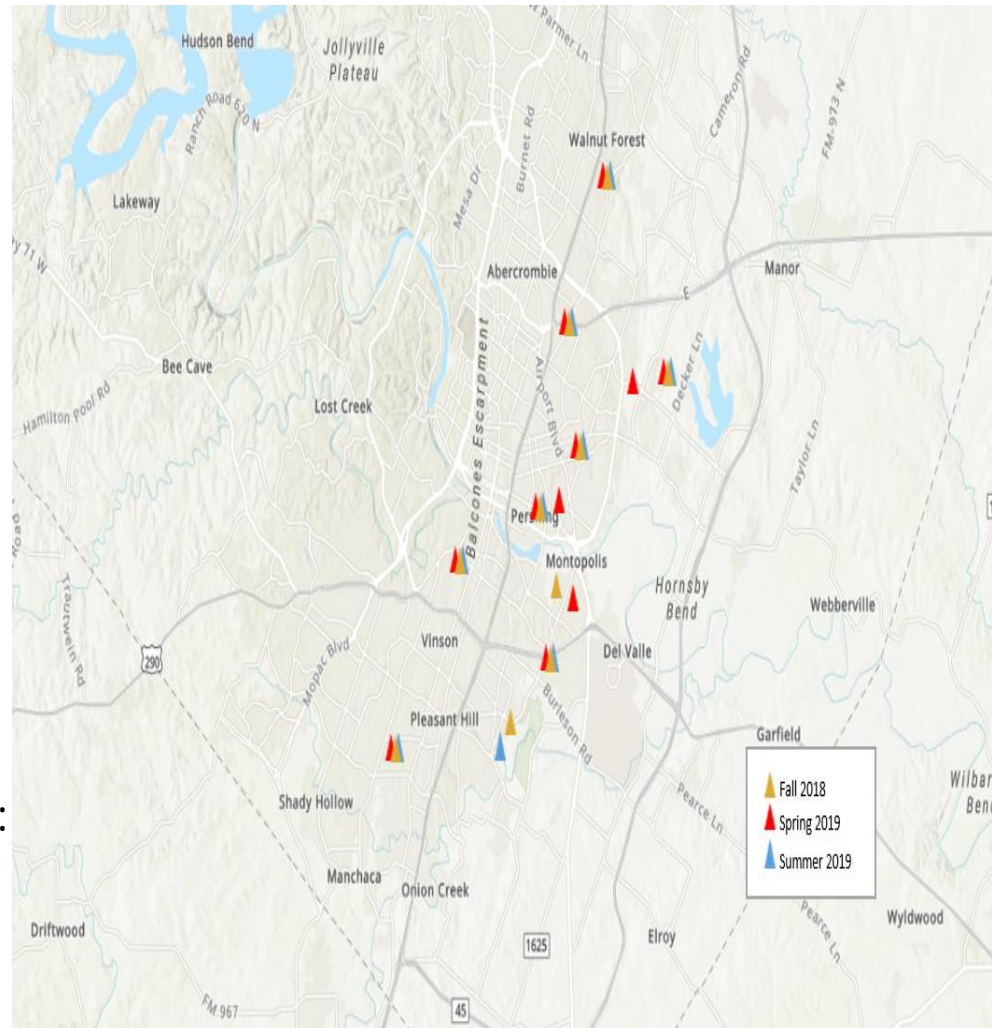
## Background

- Barriers for physical activity among adults experiencing economic disadvantage
  - ✓ *distance and lack of access to PA facilities*
  - ✓ *perc'd neighborhood safety*
  - ✓ *lack of social and community supports*

*(Dlugoanski et al., 2017; Salvo et al., 2018; Bantham et al., 2021; Parks et al., 2020)*
- In Austin, TX, over a quarter (29%) of Austin adults are obese (CAN 2021); half (50.3%) do not meet physical activity recommendations (City of Austin, 2021).



- **Aim:** Increase accessibility of free adult fitness classes in underserved communities in Austin, TX.
- **Partners:** It's Time Texas (host), PARD, APH, My Brother's Keeper/UT at Austin, UTSPH, Bloom, Aging is Cool
- **Approach:** *Interweave* Zumba, Bootcamp, Mixxed Fit, Yoga, Sr. Fitness:
  - ✓ *rec centers*
  - ✓ *city-supported housing*
  - ✓ *clinics*
  - ✓ *libraries*
  - ✓ *parks*
  - ✓ *public schools*



- Stronger Austin Adult Fitness Classes (2017-18; '18-'19):**
- ✓ 11 sites: Year 1; 15 sites Year 2;
  - ✓ 10 zip codes in Austin/Travis County (Districts 1, 2, 3, 4, 5 & 10)

# Evaluation of Stronger Austin (2017-18; 2018-19)

## *Campus – Community Partnership*

### Aims

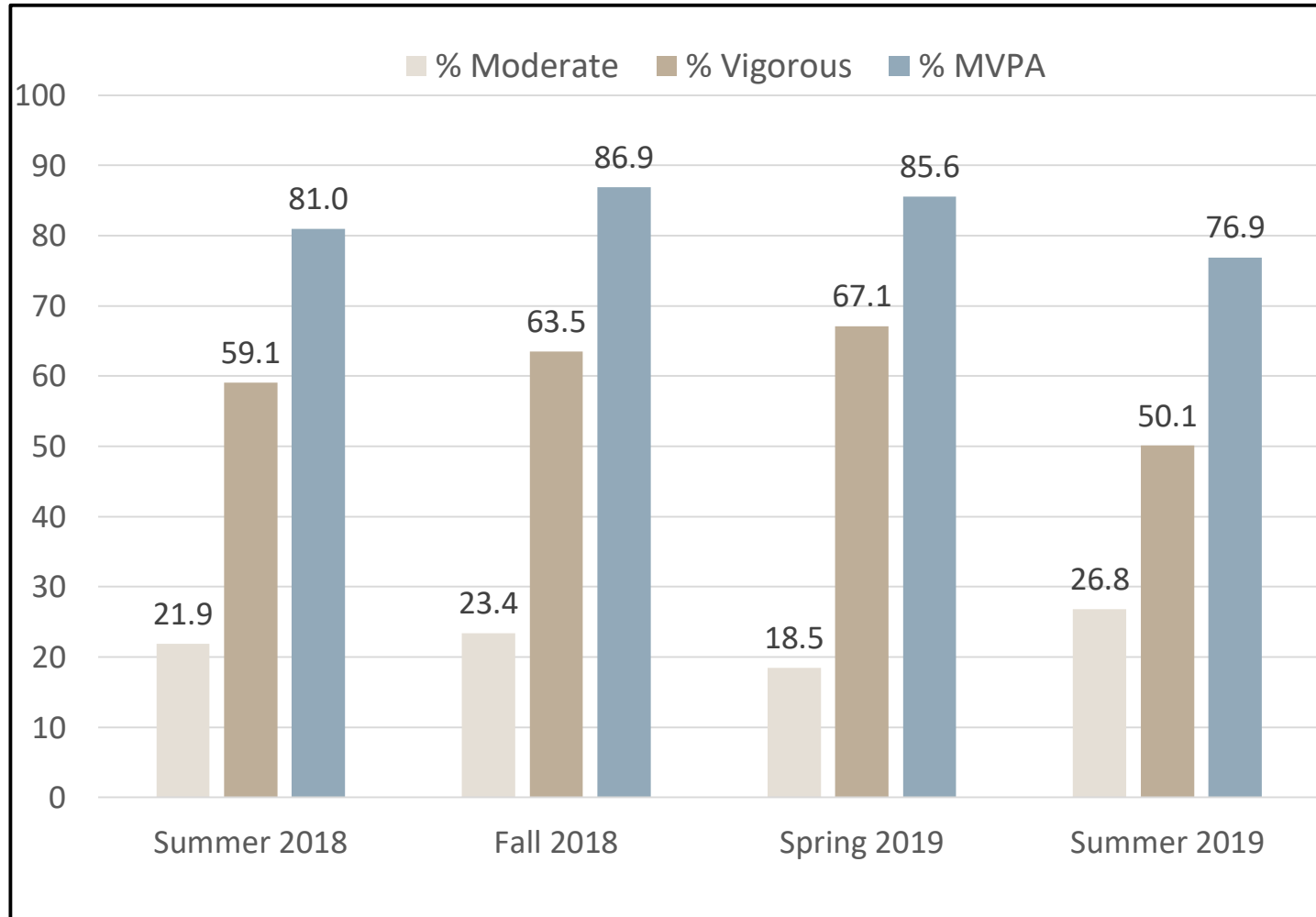
- 1.) Assess the amount of physical activity delivered via SA's adult fitness classes when delivered in 'real world' community-based settings.
- 2.) Qualitatively explore highlights, perceived benefits and recommendations for enhancing delivery of SA classes among participants and fitness instructors.

*Funding for Evaluation: Aetna Foundation*

### Methods

- Design:
  - ✓ Mixed methods
  - ✓ Process & Outcome Evaluation
- Measures: *Participants*: SOFIT (class MVPA), Focus Groups, Open-Ended Survey Questions. *Class Instructors*: Interviews
- Analysis: Descriptive statistics (quantitative data) & thematic analysis (qualitative data)

# % class time adult participants engaged in moderate, vigorous, & MVPA: Stronger Austin fitness classes (1 hr. class)



✓ Reach: n=970  
Yr.1; n=807 Yr.2  
(11 sites Yr1;  
15 sites Yr2)

✓ ~One third  
(32%): gov't  
assistance  
(e.g., SNAP)

✓ Average n=18  
adults/ class  
(range: 5-42)

✓ 76.9-86.9%  
MVPA/ class

✓ 46.1-52.1  
minutes of  
MVPA/class

Summer 2018 (n=5 sites; n= 8 observations; 32 participants observed); Fall 2018 (n=6 sites, 10 observations, n=40 participants observed), Spring 2019 (n=6 sites, 10 observations, n=40 participants observed) and Summer 2019 (n=6 sites, 12 observations, n=48 participants observed).

# Key Themes (Focus Groups, Open-Ended Survey, Interviews)

## *Highlights & Benefits*

### *Sense of Community*

- ✓ “I like the community of people and friends I have made and how the class makes me healthier and want to continue working out.”
- ✓ “The community of people – how everyone help(s) each other. Even outside of class.”
- ✓ “Diversidad de participantes”

### *Supportive Instructors*

- ✓ “La instructora es una excelente persona. Siempre nos motiva – muy buena.” ✓
- ✓ “The instructor is awesome and the friends and friendships that I have discovered. And my overall attitude changes. Not so shy anymore.” ✓

## *PA/Health Benefits & Motivation*

- ✓ “Good physical activity & motivation!”
- ✓ “I love the class itself. It’s a fun way to exercise and keep me motivated to lose weight.”
- ✓ “[SA classes] [k]eep us informed of other healthy events such as farmer’s markets throughout the city.”

## *High Accessibility & Diversity of Classes*

- ✓ *Access:* “Love how accessible this was and I came every week I could once I found out about it- it was so much fun [and] I definitely got a great workout.” “It [is] fun and close to my house”
- ✓ *Variety of offerings:* “Everywhere Variety! Can do something different every day.”
- ✓ *Diverse schedule:* “good hours”
- ✓ *Free:* “I would love to be part of all these gyms that are around, but oh my lord I can’t afford them. I’m so happy that you guys are doing this; it’s so awesome. Thank you for caring”

# Key Themes

*(continued)*

## *PA Benefits, Diversity of Participants, & Social Relationships (Triangulation from Instructor Input)*

“...with my students you can see their overall health and wellness change, and fostering relationships with people that they wouldn’t normally cross everyday paths with. So different races and cultures, backgrounds, etcetera. So it’s like a good relationship building class, and a good workout.”

## *Opportunities for Improvement & Learning*

*Class delivery.* Team activities and competitions; progressions and graded intensity levels of classes (“...There may be like a basic durance entry-level workout where it then challenges the people that do want to stick with it.”).

*Class promotion & communication:* “I hadn’t heard anything about this, you know, just friends that invited us. And that’s when we showed up. But I didn’t know that [this class] was part of a bigger project.”

### *Challenges with Interweaving:*

- “...when people come to a place that is dirty or super loud, it just creates a very stressful environment for them and they just won't feel comfortable.”
- “[SA has] classes that are at parks, so if the weather is [bad], they have to cancel a class.”
- “For us, it’s a school, so it’s based on the school calendar... If the school is shut down, like for the week of July 4th, then also our classes are cancelled.”

# Summary & Discussion

- Nothing so practical as a good theory: *A settings & environments conceptual framework holds promise to further guide health promotion planning*
- Defining the ‘space outside the individual’: Other environments?
  - ✓ *Economic environment*: e.g. 23% of Latino & 25% of Black households pay half their monthly income in housing vs. 15% of whites in Austin-Roundrock area (*Nat'l Low Income Hous. Center, 2021*)
  - ✓ *Racial/Social Equity Environment*: Inclusivity vs. Exclusionary/Discriminatory environment
  - ✓ *Time environment*: Finland (Happiest country in world)=PM exploring introduction of four-day work week (BBC, July 14, 2021)
  - ✓ *Arts & Culture Environment*
- Environ. Asset Assessment & Health Promotion Interweaving
  - ✓ Holds promise for enhancing health needs assessments as well as: *planning, effectiveness, and sustainability of community health improvement interventions*
  - ✓ Opportunity for growing theory-based (Bartholomew et al., 2016) and practice-based env. change methods : *facilitation, structural redesign, shared use, env. print, approp. org.*
- Building a science of environmental change for health promotion
  - ✓ Considerations of time (!) of env. change to allow assessment of effects; study designs (other designs needed beyond RCTs to generate knowledge- e.g., case studies); and dose (Pop. Dose Methodology, Kuo et al., 2018)
  - ✓ Better understanding the processes for co-creating change with comm. stakeholders
  - ✓ Allowing our research and practice to focus specifically on environmental change. TPHA Community Planner: “If A is in place, B will follow...” (e.g., “Communities Putting Prevention To Work” (2010-12): Tackling obesity and tobacco via policy and environmental change)

# Ignacio Martín-Baró

Universidad Centroamericana (UCA),  
El Salvador

“...openly questioned the theoretical models of mainstream psychology” = Inadequate to address the effects of structural violence affecting El Salvador. (Wikipedia)



1942-1989

## *Writings for a Liberation Psychology*

“We need to develop a progressive psychology [*public health!*] that helps people find the road to their personal and collective historical fulfillment. In our case more than anyone else’s, the principle holds...the concern of the social scientist should be not so much to explain the world, as to change it.”



# Acknowledgments

## Health Promotion Interweaving

- **Sandra van den Berg (Evans)**
- Deborah Salvo
- Jackie Ortuño
- Maria Teresa Arevalo

## Stronger Austin

- **Baker Harrell (It's Time Texas)/Founder**
- **Kimberly McNeely (PARD)/Founder**
- **Vanessa Castro (It's Time TX)/Director**
- Felisa Ruiz (UTSPH)
- Elena Luna (UTSPH)
- Nalini Ranjit (UTSPH)
- Shelby McGhee (It's Time Texas)
- Davin Bjornaas (PARD)
- Tiffany Cabin (PARD)
- Adrienne Stirrup (APH)
- Amy McGeady (It's Time Texas)
- Damien & Amy Temperley (Aging is Cool)

## Youth-led Comm. Health Learning Initiat.

- *Youth co-investigators!*
- Davin Bjornaas (Austin Parks & Rec)
- **Amanda Cortez (Del Valle High School)**
- Miguel Delgado-Ochoa (Del Valle High School)
- **Leigh Ann Ganzar (UTSPH)**
- Jill Habegger-Cain (Austin Parks & Rec)
- Ashley Levulett (Children's Optimal Health)
- **Allison Marshall (UTHealth SPH)**
- **Susan Millea (Children's Optimal Health)**
- Rochelle Olivares (Travis County HHS)
- Edna Parra (Dell Medical School)
- **Randy Randolph (SAFE Expect Respect)**
- **Barri Rosenbluth (SAFE Expect Respect)**
- Norris Sebastian (Del Valle ISD)
- Elena Smart /Michelle Friedman (Austin Public Hth)
- Ross Stephens (Travis County HHS)
- **Anna Wilkinson (UTHealth SPH)**

Thank you!

Questions/Comments?

Andrew Springer, DrPH

Associate Professor of Health Promotion and Behavioral Sciences

UTHealth School of Public Health/Dell Center for Healthy Living

[Andrew.e.springer@uth.tmc.edu](mailto:Andrew.e.springer@uth.tmc.edu)

# References

- Bantham A, Taverno Ross SE, Sebatião E, Hall G. Overcoming barriers to physical activity in underserved populations. *Prog Cardiovasc Dis* 2021;64:64-71. <https://doi.org/10.1016/j.pcad.2020.11.002>
- Centers for Disease Control and Prevention. *Health and Healthy Places*. Available at: <https://www.cdc.gov/healthyplaces/about.htm>
- City of Austin. *Healthy Austin Indicators Summary - Percent of Population that Performs the Recommended amount of Physical Activity*; 2021.
- Dlugoanski D, Martin TR, Mailey EL, Pineda E. Motives and barriers for physical activity among low-income black single mothers. *Sex Roles* 2017;77(5):379-392. <https://doi.org/10.1007/s11199-016-0718-7>
- Chetty R, Stepner M, Abraham S, Lin S, Scuderi B, Turner N, et al. The Association between Income and Life Expectancy in the United States, 2001-2014. *JAMA* (2016) 315(16): 1750-1766. doi:10.1001/jama.2016.4226
- Community Advancement Network. *Obesity in Travis County Adults*; 2021. <https://data.austintexas.gov/stories/s/Healthy-Austin/78uy-qt4w/>
- Farley TA, Meriwether RA, Baker ET, Watkins LT, Johnson CC, Webber LS. Safe Play Spaces to Promote Physical Activity in Inner-City Children: Results from a Pilot Study of an Environmental Intervention. *Am J Public Health* 2007; 97(9): 1625-1631.
- Frerichs L, Brittin J, Sorenson D, Trowbridge MJ, Yaroch AL, Siahpush M, et al. Influence of school architecture and design on healthy eating: a review of the evidence. *Am J Public Health*. 2015;105(4):e46-e57. doi: 10.2105/ AJP.2014.302453.
- Hawe P, Shiell A, Riley T. Theorising Interventions as Events in Systems. *Am J Community Psychol* (2009) 43:267-276
- Hawe P. Lessons from complex interventions to improve health. *Annu Rev Public Health* 2015;36. doi:10.1146/annurev-publhealth-031912-114421
- Matsudo V, Matsudo S, Andrade D, Araujo T, Andrade E, de Oliveira LC, Braggion G. Promotion of physical activity in a developing country: The Agita Saõ Paulo experience. *Public Health Nutrition*: 5(1A), 253-261, 2002.
- May CR, Johnson M, Finch T. Implementation, context and complexity. *Implement Sci* (2016) 11:141. doi: 10.1186/s13012-016-0506-3
- Moore GF, Evans RE. What theory, for whom and in which context? Reflections on the application of theory in the development and evaluation of complex population health interventions. *SSM Popul Health* 2017;3:132-35.
- Park S, Zachary WW, Gittelsohn J, Quinn CC, Surkan PJ. Neighborhood influences on physical activity among low-income African American adults with type 2 diabetes mellitus. *Diabetes Educ* 2020;46(2):181-190.

# References (cont.)

Perry CL, Bishop DB, Taylor GL, Davis M, Story M, Gray C, et al. A randomized school trial of environmental strategies to encourage fruit and vegetable consumption among children. *Health Educ Behav*. 2004;31(1):65-76. doi: 10.1177/1090198103255530

Reininger BM, Mitchell-Bennett L, Lee M, Gowen RZ, Barroso CS, Gay JL, et al. Tu Salud, ¡Sí Cuenta!: Exposure to a community-wide campaign and its associations with physical activity and fruit and vegetable consumption among individuals of Mexican descent. *Soc Sci Med* (2015) 143:983106. doi: 10.1016/j.socscimed.2015.08.029

Sallis, J.F., Owen, N., 2015. Ecological models of health behavior In: K Glanz, B Rimer, K Viswanath, editors. *Health Behavior: Theory, Research, and Practice*, Fifth ed. (pp.43-64). San Francisco, CA: Jossey-Bass.

Salvo G, Lashewicz BM, Doyle-Baker PK, McCormack GR. Neighborhood built environment influences on physical activity among adults: A systematized review of qualitative evidence. *Int J Environ Res Public Health* 2018;15(5):897. <https://doi.org/10.3390/ijerph15050897>

Slater MD, Kelly KJ, Edwards RW, Thurman PJ, Plested BA, Keefe TJ, et al. Combining in-school and community-based media efforts: reducing marijuana and alcohol uptake among younger adolescents. *Health Educ Res* (2006) 21(1):157-167. doi: 10.9745/GHSP-D-14-00085

Springer AE, Kelder SH, Byrd-Williams C, Pasch K, Ranjit N, Delk J, Hoelscher DM. Promoting energy-balance behaviors among ethnically diverse adolescents: Overview & baseline findings of the Central Texas CATCH Middle School Project. *Health Education & Behavior* 2013; 40(5): 559-570.

Springer AE, Li L, Ranjit N, Delk J, Mehta K, Kelder SH. School-level economic disadvantage and obesity in middle school children in central Texas. *IJBPNA* (2015) 12(Suppl 1):S8. doi: 10.1186/1479-5868-12-S1-S8

Springer AE, Davis C, Van Dusen D, Grayless M, Case K, Craft M, Kelder SH. School socioeconomic disparities in e-cigarette susceptibility and use among central Texas middle school students. *Preventive Medicine Reports* 2018; 11: 105-108.

Springer AE, Evans AE. Assessing environmental assets for health promotion program planning: a practical framework for health promotion practitioners. *Health Promot Perspect* (2016) 6(3):111-118.

Springer A, Evans A, Ortuño J, Salvo D, Varela Arevalo MT. Health by Design: Interweaving health promotion into environments and settings. *Frontiers in Public Health* 2017

Springer AE, Marshall AN, Randolph R, Wilkinson AV, Rosenbluth B, Cortez A, Greene M, Ganzar LA, Millea S, Levulett A, Delgado-Ochoa M, Sebastian N. Exploring models for youth engagement in community health planning: The Youth-led Community Health Learning Initiative. *Progress in Community Health Partnerships: Research, Education, and Action* [In press].

Springer, Castro, Ruiz, Luna, McGhee, Ranjit, Bjornaas, Sturup, McNeeley, McGeady, & Harrell. Interweaving adult fitness classes into comm. settings via Stronger Austin's comm. partnership model: Benefits for physical activity and positive social connectedness.(Under review)