



## Building evidence to reduce inequities in youth physical activity and obesity: Introduction to the Physical Activity Research Center (PARC) Special Section

James F. Sallis<sup>a,\*</sup>, Nisha Botchwey<sup>b</sup>, Myron F. Floyd<sup>c</sup>, Keshia M. Pollack Porter<sup>d</sup>,  
M. Renée Umstattd Meyer<sup>e</sup>, J. Aaron Hipp<sup>c</sup>, Anna Kim<sup>f</sup>, Terry L. Conway<sup>a</sup>

<sup>a</sup> Department of Family Medicine and Public Health, University of California San Diego, 9500 Gilman Drive, MC 0631, La Jolla, CA 92093-0631, USA

<sup>b</sup> School of City and Regional Planning, Georgia Institute of Technology, 245 4th Street, NW, Suite 204, Atlanta, GA 30332-0155, USA

<sup>c</sup> Department of Parks, Recreation and Tourism Management, NC State University, 2800 Faucette Drive, Raleigh, NC 27695, USA

<sup>d</sup> Department of Health Policy and Management, Johns Hopkins Bloomberg School of Public Health, 624 N. Broadway, Hampton House 380A, Baltimore, MD 21205, USA

<sup>e</sup> Department of Public Health, Baylor University, One Bear Place #97343, Waco, TX 76798-7343, USA

<sup>f</sup> School of Public Affairs, College of Professional Studies and Fine Arts, San Diego State University, 5500 Campanile Drive, San Diego, CA 92182-4505, USA

### ARTICLE INFO

#### Keywords:

Exercise  
Children  
Adolescents  
Health equity  
Race  
Ethnicity  
Rural

### ABSTRACT

This guest editorial introduces the rationale and goals of the Physical Activity Research Center. It provides an overview of the five papers in this Special Section plus six commissioned studies intended to inform advocacy efforts.

### 1. Introduction

A majority of adolescents in the United States do not meet physical activity guidelines, raising their risk for numerous physical and psychological disorders (Physical Activity Guidelines Advisory Committee, 2018). Low levels of physical activity contribute to risk of obesity (Physical Activity Guidelines Advisory Committee, 2018) which affects about 20% of youth in the United States (Ogden et al., 2018). Though physical inactivity and obesity are serious national problems, some populations are at higher risk. Obesity is particularly high among African American and Latino youth, with rural youth experiencing more severe obesity (Ogden et al., 2018). There are complex patterns of disparities in physical activity, with important variations by race/ethnicity, sex, age, socioeconomic status, and rural/urban residence (Whitt-Glover et al., 2009).

Many local, state, and national efforts to reduce obesity and increase physical activity among youth have been evaluated (Bleich et al., 2013; Ickes and Sharma, 2013). However, the racial, ethnic, socioeconomic, geographic, cultural, and other dimensions of diversity throughout the U.S. population create challenges for developing interventions that are

effective for all subgroups and result in reduced disparities. For example, the Healthy Communities Study of 130 communities reported reduced youth body mass index (BMI) in communities implementing the strongest youth obesity interventions. However, strength of interventions was not related to BMI outcomes in predominantly Latino/Hispanic and lower-income communities (Strauss et al., 2018). This is an indication that obesity prevention and physical activity promotion interventions need to be better tailored to the needs of youth at highest risk. Yet, evidence to guide development of more tailored interventions is particularly lacking for many of the high-risk groups, such as African Americans, American Indians, Asian Americans, Latinos, Pacific Islanders, and rural youth (Botchwey et al., 2018).

The Physical Activity Research Center (PARC) was initiated by the Robert Wood Johnson Foundation (RWJF) to build evidence to identify policies, practices, and aspects of the built environment that promote safe and equitable opportunities for developmentally appropriate physical activity for all youth and their families. PARC's focus is on groups at highest risk for inactivity and obesity. Four research teams based at six universities are collaborating on PARC. James Sallis and Terry Conway lead the team at the University of California San Diego. Nisha

\* Corresponding author.

E-mail address: [jsallis@ucsd.edu](mailto:jsallis@ucsd.edu) (J.F. Sallis).

<https://doi.org/10.1016/j.ypmed.2019.105767>

Received 27 June 2019; Accepted 6 July 2019

0091-7435/ © 2019 Published by Elsevier Inc.

Botchwey and Anna Kim lead the team at Georgia Tech and San Diego State University, respectively. Keshia Pollack Porter and Renée Umstadtd Meyer lead the team at Johns Hopkins Bloomberg School of Public Health and Baylor University, respectively. Myron Floyd and Aaron Hipp lead the team at North Carolina State University.

PARC's objectives include:

- 1) Develop a prioritized equity-focused research agenda for youth physical activity using a systematic process;
- 2) Conduct studies that inform RWJF's actions to promote physical activity and health of children from high-risk groups;
- 3) Commission and manage rapid research grants on time-sensitive topics to meet the information needs of RWJF's advocacy program, Voices for Healthy Kids, and its grantees who conduct advocacy campaigns;
- 4) Translate research into communication products to be used by non-research audiences to help accelerate the application of research into practice.

The research agenda has been published (Botchwey et al., 2018) and each of the four PARC research teams identified high priority topics for which they designed and implemented studies in 2017 and 2018. The primary purpose of this Special Section of *Preventive Medicine* is to report results from those studies. This commentary summarizes six Rapid Research Grants commissioned by PARC. All PARC-related projects are developing communication products to translate the findings to policy and practice audiences who can apply the lessons from the research.

## 2. Studies conducted by PARC research teams

All PARC studies were designed to generate evidence that could be useful in developing physical activity interventions tailored to the needs of high-risk but under-studied populations of youth. Though each study included multiple groups, those groups differed across studies. Two of the studies evaluated promising interventions. Play Streets (providing temporary play spaces with equipment and supervision) were implemented and evaluated in four low-income rural areas of various racial and ethnic populations (Umstadtd Meyer et al., *This Special Section*), and a Youth Engagement for Action and Health program (YEAH!) was evaluated in diverse communities to assess the potential for youth to advocate for change in local environments (Botchwey et al., *This Special Section*) [this refers to Botchwey, Jones-Byrnes, et al]. Two studies were observational in nature, designed to generate hypotheses for group-tailored interventions. One examined patterns of neighborhood park use among children of various race/ethnic groups (Huang et al., *This Special Section*), and the other explored the phenomenon of lower physical activity in the summer across multiple race/ethnic groups (Sallis et al., *This Special Section*). Though none of the studies can be considered definitive, they all provide novel evidence specific to under-studied groups of youth and offer directions for future studies. In the course of conducting these studies PARC investigators gained experience recruiting youth, families, and organizations from highly-diverse backgrounds, and lessons learned are summarized in this Special Section (Botchwey et al., *This Special Section*) [this refers to Botchwey, Conway, et al].

## 3. Policy-relevant rapid response grants

PARC investigators worked with leaders of Voices for Healthy Kids (VFHK) to identify research questions that could be addressed in small-scale projects. These projects were designed to provide useful information to advocates for policy changes relevant to youth physical activity promotion and obesity prevention. Specific investigators were invited to submit applications to undertake prioritized studies. Investigators had six months to conduct the studies and produce research translation products, such as briefs, scientific publications,

webinars, infographics, and websites. Research translation products are available at [www.paresearchcenter.org](http://www.paresearchcenter.org). Project goals and principal investigators are as follows:

- The California Distinguished After School Health Program was evaluated for its reach and apparent impact on physical activity. Led by Jean Wiecha of RTI International.
- A qualitative study explored how decisions about implementation of physical activity programs were made in low-resource elementary schools. Led by Emma V. Sanchez-Vaznaugh at San Francisco State University.
- The per-pupil cost of several evidence-based school physical activity programs was estimated, and an online “calculator” allows school officials to estimate costs at their own schools. Led by H. Shelton Brown at the University of Texas School of Public Health in Austin.
- A national study evaluated changes in active transportation modes attributable to community-wide investments in bicycle and pedestrian infrastructure and programs. Led by Angie Cradock at Harvard T.H. Chan School of Public Health.
- A national database was used to identify best practices regarding public health involvement in the development, adoption, and implementation of complete streets policies. Led by Jamie Chiqui at the University of Illinois at Chicago.

## 4. Translating PARC research to non-researchers

Each PARC grant has a dissemination plan targeting organizations with the potential to use the research results in policy advocacy and practice. Each main PARC study has identified target groups and is developing at least one research brief along with other communication products, including presentations at conferences serving mainly practitioners in various sectors and policy advocates. All research translation products will be available on the PARC website as they are completed ([www.paresearchcenter.org](http://www.paresearchcenter.org)).

## Declaration of Competing Interest

James F Sallis receives a stipend from Gopher Sports and royalties from San Diego State University Research Foundation related to SPARK physical activity programs.

## Acknowledgments

This work was funded by The Robert Wood Johnson Foundation (Award number 73742). The sponsor was not involved in study design; collection, analysis, and interpretation of data; or the decision to submit the manuscript for publication.

Carmen Cutter and Chad Spoon supported preparation of this paper.

## References

- Bleich, S.N., Segal, J., Wu, Y., Wilson, R., Wang, Y., 2013. Systematic review of community-based childhood obesity prevention studies. *Pediatrics* 132, e201–e210.
- Botchwey, N., Floyd, M.F., Pollack Porter, K., Cutter, C., Spoon, C.S., Schmid, T., Conway, T.L., Hipp, J.A., Kim, A., Umstadtd Meyer, R., Walker, A.L., Kauh, T.J., Sallis, J.F., 2018. Policy and practice-relevant youth physical activity research agenda. *J. Phys. Act. Health* 15, 626–634.
- Botchwey, N., Conway, T.L., Floyd, M.F., Hipp, J.A., Kim, A., Pollack Porter, K.M., Umstadtd Meyer, M.R., Burnett, J. & Sallis, J.F. Challenges recruiting diverse youth for physical activity research. *Prev. Med.* (This Special Section)
- Botchwey, N., Jones-Byrnes, J., O'Connell, K., Millstein, R.A., Kim, A., & Conway, T.L. Youth engagement and action for health: place vs. race differences in physical activity. *Prev. Med.* (This Special Section)
- Huang, J.-H., Hipp, J.A., Marquet, O., Alberico, C., Fry, D., Mazak, E., Lovasi, G.S., Robinson, W.R., & Floyd, M.F. Neighborhood characteristics associated with park use and park-based physical activity among children in low-income diverse neighborhoods in New York City. *Prev. Med.* (This Special Section)
- Ickes, M.J., Sharma, M., 2013. A systematic review of community based childhood obesity prevention programs. *J. Obes. Weight Loss Ther.* 3 (5). <https://pdfs.semanticscholar.org/95c5/db6740127529a5d08b4e7798e0131d1f3b11.pdf>.

- Ogden, C.L., Fryar, C.D., Hales, C.M., Carroll, M.D., Aoki, Y., Freedman, D.S., 2018. Differences in obesity prevalence by demographics and urbanization in US children and adolescents, 2013–2016. *JAMA* 319 (23), 2410–2418.
- Physical Activity Guidelines Advisory Committee, 2018. Physical Activity Guidelines Advisory Committee Scientific Report. U.S. Department of Health and Human Services, Washington, DC.
- Sallis, J.F., Conway, T.L., Cain, K.L., Geremia, C., Bonilla, E., & Spoon, C. Racial/ethnic variations in school-year versus summer differences in adolescent physical activity. *Prev. Med. (This Special Section)*.
- Strauss, W.J., Nagaraja, J., Landgraf, A.J., Arteaga, S.S., Fawcett, S.B., Ritchie, L.D., John, L.V., Gregoriou, M., Frongillo, E.A., Loria, C.M., Weber, S.A., 2018. The longitudinal relationship between community programmes and policies to prevent childhood obesity and BMI in children: the Healthy Communities Study. *Pediatr. Obes.* 13, 82–92.
- Umstattd Meyer, M.R., Bridges, C.N., Prochnow, T., McClendon, M., Arnold, K.T., Wilkins, E., Benavidez, G., Williams, T.D., Abildso, C.G., and Pollack Porter, K.M.. Come together, play, be active: physical activity engagement of school-age children at Play Streets in four diverse rural communities in the U.S. *Prev. Med. (This Special Section)*.
- Whitt-Glover, M.C., Taylor, W.C., Floyd, M.F., Yore, M.M., Yancey, A.K., Matthews, C.E., 2009. Disparities in physical activity and sedentary behaviors among US children and adolescents: prevalence, correlates, and intervention implications. *J. Public Health Policy* 30 (1), S309–S334.