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Youth participatory action research for health equity: Increasing youth empowerment and decreasing physical activity access inequities in under-resourced programs and schools

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Abstract

To address gaps in the youth participation and adolescent physical activity (PA) promotion literature, we examined the feasibility of youth participatory action research (YPAR) in 1) general aftercare (YPAR only), and 2) with a physical activity intervention, (YPAR + PA) to reach marginalized youth and impact individual empowerment and second order change for equitable PA access. We intervened during middle school, a developmental stage conducive to changing health habits. We used a concurrent, mixed-method triangulation design. Participants were students (94% non-Hispanic Black/African American, 75% free/reduced lunch) in the southeastern United States. YPAR was adapted from online modules. Youth conducted photo voice, capturing and analyzing social/environmental factors contributing to inequities in their schools/programs. PA inequities emerged for girls. Findings indicated feasibility of YPAR with systems supports. Changes occurred at the individual and systems level in the YPAR + PA program. Sociopolitical skills, participatory behavior, and perceived control empowerment subdomains increased pre-post, and youth qualitative responses aligned. A follow-up interview with the director revealed all youth-proposed changes occurred. A feedback loop was developed for continued youth input. Youth-led changes to increase PA access have potential to decrease health disparities by generating unique solutions likely missed when adults intervene alone.

Keywords

physical activity; health disparities; youth participation; YPAR; after-school; intervention

Consistent participation in moderate-to-vigorous physical activity (MVPA) positively impacts youth health (Hills, King, & Armstrong, 2007). Youth have difficulty meeting PA recommendations, and there are participation disparities. These disparities are at least partly due to structural inequities in access, resources, and infrastructure. In U.S. representative samples, youth of low socio-economic status (SES) participate in less PA than their middle-to-high SES peers, with the exception of African American male young adults (Uzochukwu, 2017). From childhood to young adulthood, girls participate in less PA than boys; the

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disparity is greatest for African American girls. Girls disengage from PA at a higher rate than boys; the decline is steepest from elementary to middle school (Armstrong et al., 2019; Miller et al., 2019).

Thus, early middle school is a critical time to develop health habits. PA in early adolescence is highly predictive of PA in adulthood (Bélanger et al., 2015). Characteristics of adolescence make it well suited for intervention. Youths' self-concepts are malleable as they engage in identity exploration (Zarrett & Eccles, 2006; 2009). They can integrate being active into their identities, lasting into adulthood (Barber, Eccles, & Stone, 2001; Bélanger et al., 2015). Unfortunately, adolescent PA interventions have had little impact (Mears & Jago, 2016).

Youth participatory action research (YPAR), an equity based approach in which youth conduct research and action in areas important to them (Ozer, 2017), has potential to impact adolescent PA. In contrast to school-based PA interventions focused on first order change, which seeks to increase PA through behaviors or programming without attending to the underlying context (Robinson et al., 2017; Watzlawick et al., 1974), YPAR targets systems (Kennedy et al., 2019) and second order change to address underlying inequitable conditions, alongside (either directly or indirectly) individual change (Anyon et al., 2018). During YPAR, reflection and action on PA inequities with peers and adults in a power-sharing partnership can enrich adolescent's PA-related values and developing identities, while also creating second order change, rather than impacting only one or the other.

There are areas for improvement for the health impact of YPAR. YPAR is often conducted standalone for systems change, rather than paired with a health behavior change intervention. Thus, an aim of this study was to explore the feasibility of pairing YPAR, focused on second order change, with a PA intervention, focused in individual behavior change.

There are also areas for improvement with YPAR reach. YPAR has been typically implemented in elective classes (e.g., Ozer & Douglas, 2013) and social justice focused programs (e.g., Langhout & Fernandez, 2015), potentially impacting already high achieving or civically engaged youth. General aftercare programs serve a large number of disadvantaged and minority youth, who have the greatest PA disparities and may benefit most from YPAR. Thus, aftercare may be a critical setting for individual and systems change to reduce PA access disparities. However, since YPAR had not been utilized in aftercare, its feasibility was unknown. An aim of this study was to explore the feasibility of YPAR in aftercare to expand its reach.

Systems interventions, Youth participation, and health equity

After-school PA interventions have produced small effects (Mears & Jago, 2016), especially with economically disadvantaged ethnic/racial minority youth (e.g., Wilson et al., 2011). These interventions have predominantly focused on first order change (Newman, Baum, Javanparast, O'Rourke, & Carlon, 2015). Staff are trained, new activities are introduced, but the social regularities of the setting remain unchanged (Seidman, 1988), setting up a return

to equilibrium (Sarason, 1982). Youth-led systems change aligns with youth needs, values, and interests, and addresses larger systemic barriers, which may increase the likelihood that structures and social regularities are modified to create lasting second order change, and indirectly, lead to individual changes in behavior (Newman et al., 2015).

Emancipatory youth participation approaches, such as participatory action research (YPAR), organizing, and participatory arts, have potential to reduce health inequities (Caraballo et al., 2017), as they prioritize systems and second order change. Rooted in Freire (1993)'s praxis, they can disrupt systems to create channels for youth-led change. Though we reference the youth participation literature, our work focuses on YPAR. Rappaport (1981) called for multiple, divergent solutions to community health problems. Youth participation approaches uncover unique solutions. In YPAR, youth conduct research while studying power structures (Langhout & Thomas, 2010). They take action with adult scaffolding (Ozer, 2017). New social regularities can improve social determinants of health to decrease health disparities long term.

In addition to systems change, from a developmental perspective, YPAR may also influence individual health behavior change indirectly. Adolescents have a need for autonomy (Deci & Ryan, 2008), yet opportunities for choice typically decrease during adolescence, creating a poor stage-environment fit (Eccles et al., 1996). In contrast, YPAR is developmentally appropriate. Youth are co-researchers in a youth-adult (Y-A) partnership (Suleiman, Ballard, Hoyt, & Ozer, 2019; Wong, Zimmerman, & Parker, 2010), countering the deficit focused narrative about youth capabilities (Cammarto & Fine, 2008). Participation can lead to positive shifts in health attitudes/values, and life-long health habits (Branch & Chester, 2009).

Youth participation, individual change and systems change

Youth participation approaches can increase youth empowerment through power-sharing with adults and peers in action for changes that meet their needs. Empowerment means individuals gain more control over their lives (Rappaport, 1981). YPAR has been effective in increasing empowerment in school (e.g., Ozer & Douglas, 2013), after-school (e.g., Zimmerman et al., 2018), and community settings (e.g., Berg et al., 2009). Youth participation approaches are linked to positive changes in other individual outcomes (Anyon et al., 2018) including PA attitudes/behaviors (Griebler et al., 2017). For example, following a two-year intervention developed via CBPR, youth time in after-school MVPA increased (Dzewalkowski et al., 2009). Youth participation approaches have also impacted groups, organizations, communities, schools, and policies (Kennedy et al., 2019; Shamrova & Cummings, 2017), including systems changes related to PA (Griebler et al., 2017). In one project, youth advocated for exterior lighting and female-only swim time at a YMCA (Linton et al., 2014).

Despite these strengths, gaps in the youth participation literature remain. YPAR does not reach most youth. It has been conducted mostly in elective classes (e.g., Ozer & Douglas 2013) and social change focused programs (e.g., Langhout & Fernandez, 2015), which youth opt into, potentially impacting civically engaged or high achieving youth, rather than youth

who could benefit most (Ozer, Afifi, Gibbs, & Mathur, 2018). According to the After-School Alliance website, typical aftercare programs serve a large number of youth (e.g., 10.2 million in the United States). Aftercare programs are largely attended by disadvantaged youth, who may benefit most from the increased autonomy and support from prosocial peers and adults in YPAR. Thus, an aim of this study was to expand the reach of YPAR to general aftercare.

There are also gaps related to second order change. Though studies often report youth advocacy (e.g., presentations to stakeholders), follow up is lacking, so it is unknown whether the changes occurred. Documenting sustainability is also rare. Attending to the later stages of the participatory process (i.e., action, sustainability) (Jacquez, Vaughn, & Wagner, 2013), can generate knowledge about processes necessary to facilitate lasting change. We fill this gap in the youth participation literature by exploring the feasibility of YPAR to impact a social determinant of health, access to PA opportunities. We follow up post-intervention.

Finally, there are gaps in the youth participation literature related to individual change. Measurement of processes and outcomes is under-utilized (Ozer, Afifi, Gibbs & Mathur, 2018). We recognize that rigorous measurement is not a priority in all epistemologies that conduct this work, but we attempt to fill this gap by measuring changes in individual empowerment.

Purpose of the current study

YPAR is typically implemented as an elective or social justice program, and on its own; it had not been implemented within pre-existing aftercare open to all youth, or with a health intervention (Lindquist-Grantz & Abraczinskas, 2018). Follow up on systems change was also lacking. To address these gaps, the purpose of the current study was to use a mixed method concurrent triangulation design, with multiple perspectives (i.e., adult partners, youth) and methods (i.e., qualitative journals and surveys, quantitative surveys) to come to a rich understanding of the feasibility of YPAR: 1) in aftercare, and 2) paired with a PA intervention, to impact individual empowerment and second order change to decrease PA access inequities.

Method

Adult partners

To situate ourselves in this work, we are White, Cis-gender women, and were employed at a university in the southeastern United States. The first author was a graduate student, and the second author was her faculty mentor, dissertation chair, and the PI. Neither of us are originally from the southeast. The graduate and undergraduate adult partners were ethnic/racially diverse, and from a variety of socioeconomic backgrounds. The first author attempts to combine health promotion and critical education perspectives in health equity work.

Youth partners

We implemented YPAR in two typical aftercare programs in the southeastern United States. YPAR was implemented alone (YPAR only) and alongside a PA intervention (YPAR + PA).

All students at the programs (YPAR only N = 65; YPAR + PA N = 50) could participate, but only those with consent completed measurement. We obtained consent/assent for 64 students (male =23; female =41) sixth – eighth grade youth aged 11–15 (M = 12.38, SD = 1.05) who attended from March-May 2016 (YPAR + PA N = 43; YPAR only N = 20). The majority of youth identified as non-Hispanic Black/African American (93.8%) and reported that they qualified for free/reduced lunch (75%). To counter a deficit narrative perpetuated about minority youth experiencing poverty, youth generated personal strengths for the publication. The most frequently listed strengths were: “*nice, helpful, smart, fun, leader, cool, and kind.*”

Setting description

The two aftercare programs were recruited from the community by the PI. Prior to implementation, relationships with program directors and staff were developed. The first author volunteered at events and spoke with staff about their programmatic vision. The research team conducted observations of each site before implementation to build familiarity. Both programs were in urban areas and low-resourced (e.g., under-resourced facilities/equipment, no enrollment fees, attended by underserved population). They had similar enrollment and were available each school day with a consistent schedule (i.e., snack/dinner, homework, free play). They used the school cafeteria as a home base. They served the purpose of general after school child care.

YPAR only program pre-implementation—Most students walked, rode bicycles, or were bussed. Thus, there was less parent presence when compared to the YPAR + PA program. The students ate dinner, and then attended activities Monday-Thursday. After, they participated in free play, mostly basketball in the gym. All students stayed until 6:30. The Friday schedule was open after dinner. During free play, the students were not allowed to go outside. There was an outside basketball court, but the ground was broken up and a hoop was missing. Boys played basketball. Girls sat on the bleachers talking to their friends and on laptops/phones; few joined basketball. There were ten staff. All staff periodically participated in the basketball game; some were more involved than others. Youth shared program strengths. Youth reported staff “*are helpful, kind, and thoughtful,*” and the program is “*organized, nice, cool, and active.*”

YPAR + PA program pre-implementation—Students left the program at varying times, when picked up by parents. The students had a snack, homework time, and then free play. They were permitted to go outside or use the computer lab. Some boys played soccer and football. Girls walked around the school, were on computers/tablets/phones, or talked with friends. There were four program staff; one director, one staff responsible for the sign out sheet and answering parent questions, and two other staff for general support. There were also college age volunteers. Staff usually did not participate in PA with youth. Staff mainly supervised the gym, communicated with parents, and managed misbehavior. The most frequently listed YPAR + PA program strengths by youth were “*fun, active, and helpful staff.*” Youth described sense of community: “*our program cares about the students in it and how they thrive individually; we are all diverse but come together as one. We are all a big family.*” Youth noted adult support, “*they are helpful and listen to my point of view; they are good at getting us what we want and need...*”

Materials and procedure

To be eligible for study participation, students were required to: 1) be enrolled and regularly attend, 3) have consent/assent, and 4) be available for measurement. The planned intervention length for both programs was seven weeks. No youth were excluded from YPAR.

YPAR only program—YPAR only 75-minute sessions occurred once a week for four weeks, with four groups of 6–15 students and two adult partners per group. The original plan was to implement during free play, but aftercare staff asked for YPAR to be the entire programming time, leading to 75 minute sessions. Thus, this program did not have youth rotate in and out of YPAR and other activities, so the groups were larger than in the YPAR + PA program. The aftercare program changed its schedule mid-implementation, ending one month before the end of the school year, which led to the four week time frame. Due to our value system, we prioritized flexibility and meeting program needs while still implementing the essential elements.

YPAR + PA program—There were two primary components implemented during the pre-existing free play time: 1) small group social/friendship building opportunities (in this specific case, YPAR), and 2) a socially-oriented PA curriculum (Connect through PLAY). In YPAR, there were seven groups of 3–7 students each. The same two adult partners worked with all groups in 20-minute increments for an hour, once a week for seven weeks. The PA component occurred for an hour three days a week for seven weeks. Programming proceeded as planned in this program – during free play and for seven weeks.

PA component: Connect through PLAY was informed by Self-Determination Theory (Deci & Ryan, 2008). Settings that promote positive, goal directed behavior target key social-emotional needs. They 1) provide experiences to demonstrate competence with new skills (i.e., self-efficacy); 2) encourage social relationships in which youth feel supported and valued (i.e., relatedness/social connection); 3) and allow youth to have opportunities to make choices (i.e., autonomy). These processes culminate in a positive social-emotional climate. Multiple levels of the setting (i.e., staff, peers, activities) were targeted. Youth had choice in novel group games that were inclusive, non-competitive, and social. Essential elements were: 1) moral, emotional, and social goal-oriented support 2) collaborative, cooperative play centered on friendship and informal-fun; 3) equal treatment/access, and; 4) an inclusive and engaging climate for youth and staff. Processes and outcomes of Connect through PLAY are discussed elsewhere (Zarrett, Abraczinskas, Cook, Wilson, & Roberts, 2020).

YPAR: The YPAR curriculum was drawn from (<http://yparhub.berkeley.edu/>). We adapted the materials after consulting with the developers and aftercare staff. Modifications included: shortened time students were engaged in seated discussion; PA topics; only photovoice instead of all research methods to fit into the seven week time frame. Photovoice was selected because it is interactive and involves art and movement, which appealed to youth with competing activity choices. Essential elements were processes central to YPAR: iterative integration of research and action, training and practice of research skills, power-sharing in research and action, strategic thinking (e.g., discussion of root causes to social

problems, information about how rules/policies are made, developing research-based recommendations and alliances with stakeholders), and strategies for change (Ozer, Ritterman, & Wanis, 2010). Additional essential elements not unique to YPAR were: expansion of social networks, opportunities/guidance for group work, development of communication skills, emphasis on student perspectives, flexible projects/structure, and meaningful engagement (Ozer et al., 2010). Aligning with elements of SDT in Connect through PLAY, YPAR aimed to increase youth empowerment and intrinsically motivated goal-directed behavior through: 1) gained leadership, research, and interpersonal competencies (competence), 2) deepened connections with peers, staff, and the school/program (relatedness), and 3) autonomy via a power-sharing, pluralistic Y-A partnership (autonomy).

Undergraduate/graduate students were trained and served as adult partners. Single gender groups were used due to staff and youth preferences. Youth participated in critical and collective inquiry, reflection, and action (Friere, 1993). Youth discussed systemic influences on their health, and barriers and promoters of PA in their life, including the influence of power differentials in health decision making to build *sociopolitical skills*. Adult partners shared power with youth in decision making about the project and group work to grow youths' *perceived control*. Youth engaged in *participatory behavior* through photo voice. They took pictures of barriers and promoters of PA in their programs/schools. They analyzed the photos and identified feasible changes based on their knowledge of existing power structures. Youth and adult partners brainstormed relevant stakeholders and dissemination strategies. Youth created a poster presentation with photo data, a catchy slogan, their proposed change, and quotes. They advocated to school/program stakeholders at a parent/community night. Successful advocacy could lead to *motivation to influence* systems changes in the future.

Qualitative measures—Qualitative assessment included three methods (i.e., adult partner journals, youth surveys, youth-adult partner photo journals) to understand individual empowerment (i.e., participatory behavior, sociopolitical skills, perceived control, motivation to influence) and one to understand systems change (i.e., director interview). Adult partners journaled each week. The journals were also important for reflective practice (Fernandez, 2018). Youth answered open-ended questions post-intervention. Youth groups also completed photo journals about the Y-A partnership, with pictures and captions. A 30-minute interview with program directors occurred six months post- to determine if youth-proposed changes happened.

Quantitative measures—The Youth Empowerment Scale (26-items; 4 point scale Strongly Disagree-Strongly Agree) measures sociopolitical skills, motivation to influence, participatory behavior, and perceived control as empowerment subdomains. It demonstrated acceptable reliability/validity for high-school students across race/ethnicities (Ozer & Schotland, 2011). We piloted it with middle schoolers, and made modifications to language/sentence structure. The modified scale ($\alpha = .92$), and sociopolitical skills (nine items, $\alpha = .78$), participatory behavior (eight items, $\alpha = .86$), and perceived control (six items, α

= .86) subscales all had good reliability. The motivation to influence subscale had poor reliability (four items, $\alpha = .67$); results of this subscale must be interpreted with caution.

Analysis Plan

We used a mixed method one-phase concurrent triangulation design with equal weighting (i.e., QUAN + QUAL) to obtain different but complementary data on the same topic (multi-level change) (Creswell & Plano Clark, 2007). We triangulated the quantitative and qualitative data using a convergence model (Creswell & Plano Clark, 2007), along with the first author's notes/reflections. We compared/contrasted during analysis, and provided interpretation in the discussion. We quantitatively analyzed survey responses using within sample t-tests and descriptives. We qualitatively analyzed youth, adult partner, and regional program director responses using directed manifest content analysis (Berg, 2009). We grouped responses into individual empowerment (i.e., participatory behavior, perceived control, sociopolitical skills, motivation to influence) and systems change categories. We converged the categorized quotes with quantitative findings to provide a rich description of feasibility of YPAR in 1) general aftercare, and 2) with a PA intervention, to impact individual and systems change.

Results

Individual empowerment: Participatory behavior

Youth in both programs built competence in participatory behavior via photo voice. Youth expressed growth from the research process, through *"taking the pictures, going around the school, making the poster, and "looking at the pictures."* In both programs, *"taking pictures"* with peers was their favorite part (YPAR only N=10, YPAR + PA N=21).

Though youth in both programs enjoyed photo voice, only youth in the YPAR + PA program reported benefit from the advocacy element. Youth reported investment in advocacy: *"I liked that we worked really hard on the poster."* In the YPAR + PA program, youth reported gains in participatory behavior: *"it helped me with my public speaking skills."* Four students reported increased confidence: *"I'm sometimes shy, but I did it! Helped me build my confidence in speaking in front of other people."* Youths' quantitative responses converged with their qualitative remarks; the mean rating of participatory behavior increased pre-post. (See Table 1 for all youth empowerment scale results).

In the YPAR only program, youth only listed initial photo voice activities as beneficial (e.g., taking pictures, walking outside, talking with each other). Youth did report gained capacities in manners (N=1) and preparations for future success (N=2). Youth reported participatory behavior did not significantly change pre-post.

Individual empowerment: Sociopolitical skills

In the YPAR + PA program, youths' understanding of systems influences on their health grew. For example, *"it helped me learn things that I can do to make the community better and more fit."* They reported gains in sociopolitical understanding/skills: *"I learned that there is always a bigger picture to everything," "it showed me a different side of pictures,*

and *“it helped me learn about something we need in the school.”* Youths’ quantitative responses converged with their qualitative remarks; the mean rating of sociopolitical skills increased pre-post. In the YPAR only program, youth did not reflect on sociopolitical topics in their qualitative responses, and sociopolitical skills did not significantly change pre-post.

Individual empowerment: Perceived control

In the YPAR + PA program, youth specifically discussed perceived control: *“...I liked how we get to do it without adults telling us what to do; complete creative control.”* They also reported feeling comfortable: *“anyone could come up with an idea that they value or have a strong opinion on...”* The quantitative data converged with youth and adult partner qualitative responses, as youth also reported significant pre-post changes in perceived control. In contrast, in the YPAR only program, youth did not highlight control of the project. Their responses focused on enjoying time with adult partners; for example, *“they were fun”* and *“listened.”* The closest response to control was *“letting us express ourselves,”* and reported perceived control did not significantly change pre-post.

Though youth did not report perceived control in their surveys in the YPAR only program, there was evidence of it in the adult partner journals. Adult partners reflected on promoting autonomy: *“all we did was facilitate the program and really listened to what the kids had to say!”* *“We gave them choices wherever we could this week. I think they like that.”* *“They really seemed to appreciate being heard...”*

Adult partners also recognized where they could have shared more power, but were restricted by time, the schedule, or number of youth: *“I never felt like I was pushing my own agenda but tried to adhere to the schedule,”* *“the youth had shared power in terms of what they wrote and how the poster looked but we definitely restricted them.. time was limited... and we had to get the poster complete...”* *“In our group of 4 we sometimes found two voting yes and two voting no. So sometimes we had to make an executive decision...”*

Though adult partners in the YPAR only program effectively shared power with youth, power-sharing did not extend to program staff. Some youth did not have confidence that stakeholders would implement their ideas: *“Some of the students... don’t believe their opinions matter or that change will actually occur.”* The Y-A partner journals illustrated youth wanted more control. A YPAR + PA group wrote, *“be more creative with posters, allow for more creativity, we got it! let us have more control.”* A YPAR only group suggested adult partners could challenge them: *“it shows that things are too easy; Too easy question, harden up!”*

Individual empowerment: Motivation to influence

In both programs, youth qualitative responses showed evidence for motivation to influence. The majority of students (N=24) in the YPAR + PA program and all students in the YPAR only program replied “yes,” to keep working for change. For example, one student stated *“we can do more research and present to the school board,”* and another student expressed *“I would love to keep working for the dance team.”* Students reflected: *“what we did is very important and everything everyone did;”* *“everyone can actually enjoy or do what we fought so hard to make happen for everyone.”* Youth in the YPAR only program referenced social

action, with broader ideas: “*We should make a change and keep working on the basketball goal,*” and “*I want to make a lot of changes.*” Despite evidence of motivation to influence in qualitative responses, the quantitative data did not converge (pre-post changes = n.s.)

Second order change to decrease PA access inequities

Second order changes were assessed via interviews with the program director at six months post implementation and field notes/observations by the first author.

YPAR + PA—Research staff engaged parents at pick up about their children’s efforts, and were able to recruit them for the parent night. All groups presented to the director, staff, assistant principal (AP), parents, adult partners, and graduate/undergraduate PA volunteers. Youth proposed: give all students an exercise break, have water and healthy snacks available, create an after-school dance team, fix the high ropes course, and use the fields for active activities. One of the girls’ presentations was particularly memorable, as they discussed PA inequities. They presented their findings that boys had choice in PA, but girls did not, and proposed a dance team. Another group presented a dance routine planned on their own, surprising everyone.

The regional director and AP talked to youth about their ideas. The AP was alarmed with the context behind “*all students deserve a break.*” Youth presented their findings that students in honors classes were receiving PA breaks at school, but those in other classes were not. The AP reported that teachers were required to give all students breaks. To address youths’ concerns, she created a twenty minute end of day recess period. The regional director reflected on this:

“...their free/recreation time during the school day shrunk down to almost nothing, and that’s what the kids said too, and the AP heard that and she was already thinking about tacking on a little after school time so they could have extended free time/recreation. Many of the students in the school are taking advantage of that. It was something that was brought to her attention from students. Throughout the day she has created time to be active...that just set the tone for knowing, showing a lot of change can happen from the students.”

The AP told youth that plans were underway for the high ropes course, and providing water would be easy because they had leftover bottles from the flood. The director raved about the dance routine, and stated plans would be in place soon. They arranged to have university volunteers lead the team. A six month follow up interview indicated all changes occurred.

In the YPAR + PA program, the director discussed facilitators of change. Researchers built relationships with stakeholders early: “*You were actually at the school prior...spending face time with the principal may go a long ways.*” The research team also had administrative buy-in, “*..if it’s not the principal it definitely has to be some sort of administrative presence for that change, and also for them to really understand the impact of the program.*” Finally, stakeholder and youth views aligned: “*The AP said that she saw (what students wanted) it, but didn’t know that the students cared about it, so when all that was brought to her attention in the presentations, it made her feel like, Ok, it’s not just me seeing this. The kids want it as well.*” Key to sustainability of youth-voice was a feedback loop between youth and school

stakeholders: “*We’ve created that bond...the principal is asking us, what do your students think about this?*”

YPAR only—The aftercare and research staff observed presentations in the auditorium. The proposed changes were: fix the outdoor basketball hoop, PA breaks during school, more physical activity/sports, and provide healthier lunch. None of the proposed changes occurred.

There were systems level barriers to second order change. It was a major challenge to engage stakeholders in the parent/community night. Though youth walking/being bussed home was beneficial for program attendance, it limited contact with parents. Sending informational flyers home in bookbags was the only feasible option. Contact barriers likely led parents to be absent from the presentations. The first author contacted organizations to attend. They reported they would if they were community projects (they were not). Two organizations were shocked that the researchers were in the school, as they could not reach the principal. The principal was inaccessible to the PI despite multiple attempts. The principal did not attend the presentations.

It was difficult to implement YPAR within the changing program. YPAR length was unexpectedly cut because aftercare ended suddenly, a month before expected. It was challenging to cut the curriculum and achieve the essential elements. The groups were also large due to program staff wanting all youth to participate the entire time, rather than in rotations. Likely due to having less time and large groups, the presentations were disorganized. Post-presentation, program staff did not discuss youth change ideas. They had a large program and were focused on managing behavior and snacks before students went home. Ultimately, due to lack of support from the school administration, and aftercare ending abruptly, the changes did not occur.

Discussion

The current study had two separate feasibility aims: 1) exploring YPAR in general aftercare, and 2) with a PA intervention, to impact individual empowerment and systems change. In both programs, power-sharing occurred with adult partners; discussions centered on youth ideas. Youth learned photo voice and advocacy skills. They chose picture locations and the change idea. They gained skills in public speaking, and new friendships.

In the YPAR + PA program, quantitative and qualitative data converged; the program structure promoted empowerment (Ozer et al., 2010; Ozer & Schotland, 2011). Youths’ participatory behavior, sociopolitical skills, and perceived control grew. Gains in participatory behavior occurred via involvement in all of photo voice, and sociopolitical skills were reflected in changes in systems thinking. Perceived control occurred via autonomy and power-sharing with adult partners and stakeholders. There was a large presentation turnout. Stakeholders spoke to youth about their ideas and took their input seriously. The PA intervention complimented YPAR. Youth had autonomy in participation in fun, non-competitive games, which may have reinforced positive PA attitudes/values and youth investment in PA advocacy.

In the YPAR only program, the qualitative and quantitative data did not converge. Empowerment subdomains did not improve, although youth qualitatively reflected change in some areas. Findings suggested youth experienced a power-sharing Y-A partnership within YPAR. However, youth voiced concerns that stakeholders would not take them seriously. There was low presentation turnout and absence of discussion of proposed changes. The power-sharing partnership did not extend to the staff and school administration, and the larger context did not promote empowerment. In under-resourced aftercare settings, aligning with program director comments, YPAR is not feasible if those with decision making power are not invested. Direct front line staff are typically underpaid and heavily tasked, so there must be buy-in and open channels of communication across multiple levels to have capacity to implement change.

The data did not converge for either program related to motivation to influence. Some youth wanted to stay involved and take future action, but the quantitative assessment did not improve pre-post. The surveys were completed immediately after the intervention when proposed changes had not yet occurred. Perhaps, in the YPAR + PA program, motivation to influence changed later, as youth saw their ideas come to fruition. The reliability of the motivation to influence subscale was poor, so its results should be interpreted with caution.

Reflections on addressing health inequities

This study shows that youth can generate feasible ideas to improve their PA options and advocate with adult scaffolding if multiple levels of the system come together. Presentations from girl groups were particularly informative in the YPAR + PA program. There was consensus that boys had PA options that they liked, but girls did not. Girls reported they were encouraged to participate in sports with the boys, but did not truly feel welcome or comfortable when they did engage. As we continued this work in different aftercare programs, these views persisted. Girls requested activities like dance, while boys struggled with generating any PA need. In one program, boys' responses were particularly telling, as they reported they did not want new PA in the program, because they did not want the time allotted for their PA to decrease.

Reflections from our work align with PA intervention qualitative findings (Corr, McSharry, & Murtagh, 2019) and the participatory PE literature (Oliver & Hamzah, 2010). For middle school girls, gender-based activities seem important for comfort and interest. Further, current PA opportunities may not be inclusive in implementation, though they are in intent. Providing opportunities for girl voice in designing aftercare PA can address access inequities and align with their interests and skills, which may impact their participation. More broadly, disparities in MVPA by gender, race/ethnicity, and SES highlight the need for programs with PA options with equitable reach, created for and by youth most vulnerable to PA access inequities.

Public health researchers propose that creating health promoting settings is an optimum way to improve population health (Newman et al., 2015). Community psychology theories also highlight second order change to promote health and empowerment (Rappaport, 1981). Thus, YPAR paired with a PA intervention has potential to have a radiating impact in schools. All youth have the opportunity to participate in new PA options, including youth

experiencing inequities. However, engaging everyone has the potential to increase health disparities if those most at risk do not engage (Thornton et al., 2016). Including youth experiencing the inequities in creation of those options can mitigate, but not eliminate, this risk. These participatory spaces have potential to recalibrate opportunities, and attention to often marginalized and silenced groups (Bradbury-Jones, Isham, & Taylor, 2018).

Reflections on second order change

Youth participation is embedded within power structures in spaces typically defined/ controlled by adults; YPAR can be damaging if adults discount youth efforts (Greene et al., 2018). It is crucial that adult partners use setbacks to promote developmental lessons (e.g., change can take time) (Anderson, 2019), and provide support and scaffolding (Wong et al., 2010). YPAR is most effective for second order change when there is stakeholder support at multiple levels (Anderson, 2019), and open channels of communication. Implementing YPAR in a school setting posed unique challenges in the YPAR only program. The professional hierarchy limited the ability of outside adults supporting YPAR to have control over whether changes occurred. Direct aftercare staff supported YPAR, but did not have power to make their proposed changes. Thus, it is crucial to have at least one inside advocate/champion who holds power in decision making (Anderson, 2019) to ignite the second order change process.

Numerous youth participation efforts have had similar challenges. In one example, youth developed critical thinking and empowerment, but also did not have opportunities for action (Vaughan, 2014). To address this issue, aftercare programs could be assessed for organizational YPAR readiness (Scaccia et al., 2015). Readiness assessments have occurred for prevention initiatives (Kingston et al., 2018) and advocacy for obesity prevention (Frerichs et al., 2012).

Youth participation approaches seem needed in general aftercare and public schools due to society's paradigm about what youth, and especially marginalized youth, are capable of accomplishing (Cammarato & Fine, 2008). YPAR can change adult schemas of youth via alternate personas (e.g., thoughtful, equity-focused change makers) (Greene, Burke, & McKenna, 2018), particularly meaningful for youth from stereotyped backgrounds facing systemic inequity (Cammarato & Fine, 2008). Feedback loops could be routinized for transformative, equitable change. A scaled example is the PLUS program, implemented in 110 California schools. Youth, make prevention/intervention decisions to meet peers' needs (Cohen et al., 2019). YPAR has great promise for education. It promotes stage-environment fit (Cammarato & Fine, 2008; Sulieman et al., 2019), empowerment (Ozer & Douglas, 2013; Zimmerman et al., 2018) and positive educational outcomes (Voight & Velez, 2018).

Strengths

This was the first study to implement YPAR within pre-existing aftercare serving all youth, expanding its reach to under-resourced settings. YPAR is typically influenced by selection effects, potentially reaching high achieving or already civically engaged youth (Ozer, 2017). Building critical YPAR processes into the social regularities of general aftercare settings can expand its reach to youth who may benefit most.

The current work was also the first study to integrate YPAR into a PA intervention. The combination of YPAR and a PA intervention grounded in SDT potentially provided a double dose of empowerment. Combining group-based PA interventions with youth-driven systems change may be effective in having a radiating impact on decreasing PA disparities long term.

We addressed measurement gaps in the literature. We measured individual and systems outcomes using mixed methods. We also assessed the Y-A partnership. We followed up with stakeholders about actualized change, documenting a later stage of the participatory process.

Limitations

There are limitations related to alignment with participatory research paradigms. The curriculum was brief; ideally, participation occurs over a longer time period (Hacker, 2013). Despite this, it was a strength that implementation was flexible and responsive to program needs. Using project-based language and working within grant funding is also problematic (Kidd, Davidson, Frederick, & Kral, 2018), as we entered with a project idea and the change had to focus on PA. We were not community insiders, so the project may not have optimally aligned with program needs like it could if stakeholders were leading (Bogart et al., 2009; Necheles et al., 2007). Thus, this was not a pure youth-led participatory approach; participatory research is conceptualized on a continuum (Hacker, 2013). Youth did have choice in selecting their PA change focus and whether it occurred in the program or school. It is promising that, in one program, increases in self-reported youth empowerment occurred during a seven-week period, and second order change occurred later.

Conclusion

For YPAR to be feasible in an under-resourced aftercare setting, it is pertinent to have stakeholder support at multiple levels, and the system needs capacity for second order change. Findings provide preliminary evidence to support the inclusion of YPAR in health interventions. To impact health disparities, it is pertinent to listen to those most affected (Frohlich & Potvin, 2008). Youth and adult partners can create PA opportunities aligned with youth interests, which may impact their values and health behaviors. Youth participation approaches provide insider perspectives that top-down change efforts miss. Youths' interactions with changed systems has potential to create a radiating impact to reduce health disparities through new health promoting opportunities created through second order change.

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Highlights

- Gaps in the youth participation and physical activity intervention literature are addressed.
- YPAR was implemented in general aftercare, and with a physical activity intervention for youth-led change.
- Individual/systems change occurred in the program with YPAR with a physical activity intervention.
- Strategies for decreasing physical activity disparities are discussed.

Table 1.

Paired samples t-test results of YPAR Only and YPAR + PA programs

Variable	Time 1		Time 2		<i>t</i> (12)	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
YPAR Only						
Sociopol	3.31	.31	3.28	.68	.21	.84
MotToInfl	3.33	.52	3.37	.60	.27	.79
PartBehav	3.24	.53	3.11	.63	.71	.49
PerControl	3.19	.64	3.17	.76	.25	.81
TotEmpo	3.27	.41	3.22	.56	.43	.68
YPAR + PA						
Sociopol	3.04	.45	3.30	.46	3.33	.003*
MotToInfl	3.50	.43	3.55	.45	.52	.61
PartBehav	2.52	.79	3.07	.48	3.19	.005*
PerControl	2.66	.83	2.97	.64	2.33	.03*
TotEmpo	2.87	.52	3.19	.40	3.84	.001*

Note.

**p* < .05.

N = number of participants; SD = standard deviation; Sociopol = Sociopolitical subscale; MotToInfl = Motivation to Influence subscale; PartBehav = Participatory Behavior subscale; PerControl = Perceived Control subscale; TotEmpo = Total Youth Empowerment Scale.