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October 2024

## Process Evaluation of a Pilot Physical Activity and Social-Emotional Learning Curriculum Implemented in a Summer Care Program for Child and Adolescent Girls

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### Recommended Citation

Prochnow, Tyler; Jackson, Deja T.; Curran, Laurel S.; Park, Jeong-Hui; Patterson, Meg; and Valois, Robert F. (2024) "Process Evaluation of a Pilot Physical Activity and Social-Emotional Learning Curriculum Implemented in a Summer Care Program for Child and Adolescent Girls," *Health Behavior Research: Vol. 7: No. 4*. <https://doi.org/10.4148/2572-1836.1243>

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## Abstract

Physical activity (PA) and social-emotional learning (SEL) are critical for healthy development, yet few programs have evaluated integrated promotion efforts within out-of-school summer contexts. The EmpowerHER program was piloted in a summer care program for girls. This study aimed to conduct a process evaluation, assessing the program's fidelity to curriculum design and theory to make recommendations for continuous program improvement. The EmpowerHER curriculum was tailored towards girls ( $n=11$ , 10-14 years old) and implemented through a community summer care program. The 8-week program consisted of 90-minute sessions conducted twice per week during the summer of 2023 in Texas, USA. Fidelity was evaluated using the System for Observing Fitness Instruction Time (SOFIT), which characterized participant PA levels, lesson context, social interactions, and instructor interactions. Participants wore ActiGraph GT9X accelerometers to measure PA and completed surveys to assess perceptions of activities. SOFIT observations revealed varying levels of PA across sessions, with peaks in Sessions 4 (26%) and 5 (12%). Accelerometer data showed higher light PA ( $M=18.3\pm 6.1$  min) compared to moderate-to-vigorous PA ( $M=9.6\pm 4.9$  min) per session. Surveys indicated high enjoyment ( $M=4.6\pm 0.3$ ), learning ( $M=4.1\pm 0.1$ ), and perceived PA engagement ( $M=4.5\pm 0.2$ ). Participants expressed preferences for interactive activities and more gym time. Triangulating multi-method process data enabled nuanced optimization of intervention components session-by-session. The curriculum balanced educational components with PA opportunities, but would benefit from more consistent PA. Positive social interactions and participant feedback highlighted the program's potential to enhance SEL. Future iterations should prioritize activities that foster positive relationships and maximize PA.

## Keywords

Physical activity, Social-emotional learning, Adolescents, Curriculum evaluation, Summer care programs

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### Abstract

Physical activity (PA) and social-emotional learning (SEL) are critical for healthy development, yet few programs have evaluated integrated promotion efforts within out-of-school summer contexts. The EmpowerHER program was piloted in a summer care program for girls. In this study, we conducted a process evaluation, assessing the program's fidelity to curriculum design and theory to make recommendations for continuous program improvement. The EmpowerHER curriculum was tailored towards girls ( $n = 11$ , 10-14 years old) and implemented through a community summer care program. The eight-week program consisted of 90-minute sessions conducted twice per week during the summer of 2023 in Texas. Fidelity was evaluated using the System for Observing Fitness Instruction Time (SOFIT), which characterized participant PA levels, lesson context, social interactions, and instructor interactions. Participants wore ActiGraph GT9X accelerometers to measure PA and completed surveys to assess perceptions of activities. SOFIT observations revealed varying levels of PA across sessions, with peaks in Sessions 4 (26%) and 5 (12%). Accelerometer data showed higher light PA ( $M = 18.3 \pm 6.1$  min) compared to moderate-to-vigorous PA ( $M = 9.6 \pm 4.9$  min) per session. Surveys indicated high enjoyment ( $M = 4.6 \pm 0.3$ ), learning ( $M = 4.1 \pm 0.1$ ), and perceived PA engagement ( $M = 4.5 \pm 0.2$ ). Participants expressed preferences for interactive activities and more gym time. Triangulating multi-method process data enabled nuanced optimization of intervention components session-by-session. The curriculum balanced educational components with PA opportunities, but would benefit from more consistent PA. Positive social interactions and participant feedback highlighted the program's potential to enhance SEL. Future iterations should prioritize activities that foster positive relationships and maximize PA.

**Keywords:** physical activity; social-emotional learning; adolescent girls; summer care program; process evaluation

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### Introduction

Physical activity (PA) is associated with extensive physical and mental health benefits for adolescents, including improved fitness, healthier body composition, better academic

achievement, reduced anxiety, and enhanced mood (Janssen & LeBlanc, 2010). However, some research indicates that few girls in the United States (U.S.) meet PA guidelines of 60 minutes of daily moderate-to-vigorous physical activity (MVPA) (Cooper et al.,

2015; Piercy et al., 2018). Disparities in PA engagement across gender, racial/ethnic, and socioeconomic subgroups, signal a need for targeted promotion efforts among vulnerable youth (Aubert et al., 2022). For example, girls are often less physically active than boys which may be due to unequal support or influence at family, peer, and school/environmental levels (Pearce et al., 2012; Telford et al., 2016).

Simultaneously, social-emotional competencies like relationship building, responsible decision-making, self-management, and social awareness garner heightened developmental importance in adolescence (Durlak et al., 2010). Social-emotional learning (SEL) involves the attitudes, skills, and knowledge to navigate emotions, demonstrate care for others, make constructive choices, develop positive relationships, and handle interpersonal situations constructively (Durlak et al., 2010; Taylor et al., 2017). Enhancing social-emotional assets promotes positive youth development tied to better academic performance, reduced health risk behaviors, and improved mental health (Durlak et al., 2010; Taylor et al., 2017).

Previous research suggests PA programs can improve SEL among adolescents (Marttinen et al., 2020; Olive et al., 2020). For example, Goh et al. (2022) tested a before-school PA program on SEL among elementary and middle school students. After attending three PA sessions per week for three weeks, fourth- and sixth-graders reported a 7% and 10% increase in SEL constructs, respectively, suggesting PA as a promising approach for enhancing adolescent SEL (Goh et al., 2022). Many schools have incorporated SEL curricula into physical education classes for students in hopes of capitalizing on both the correlation between SEL and PA, as well as the easy integration of SEL principles into physical education (Ciotto & Gagnon, 2018). However, most

programs and opportunities only occur during the school year.

The transition between the highly structured school year to the more relaxed summer break, disrupts normal rhythms prompting health behaviors like PA and social connections (Brazendale et al., 2017). Without physical education and organized sports facilitating activity, many children and adolescents experience declines in PA levels over the summer months (Beets et al., 2019; Brazendale et al., 2018; Weaver, Beets, et al., 2018). Decreased structure also impacts opportunities for continual social interaction and relationship building outside of school (Bates et al., 2018; Bohnert et al., 2014). However, community summer programs like the Boys & Girls Club and YMCA aim to provide outlets for both PA and positive youth development when school is out of session (Dugger et al., 2020). These summer care programs offer enrichment activities, physical recreation, and opportunities for relationship development through semi-structured, adult-supervised health promotion and PA programming (Dugger et al., 2020). As such, summer camps represent opportune, yet underutilized settings for promoting equitable health behaviors and social-emotional assets amid wavering school supports.

## Purpose

Although summer care programs have potential to facilitate youth development, few published studies describe process or pilot test evaluations of integrated PA and SEL curricula implemented in these out-of-school contexts. Therefore, in this paper, we aim to provide fidelity and process evaluation data for a PA and SEL program called EmpowerHER, which was tailored for child/adolescent girls aged 10-14 and implemented through a summer care program over eight weeks. This pilot study assesses

fidelity and process through systematic observations, accelerometer measured PA and exit surveys. Documenting fidelity and process evaluation data represents a critical next step before further testing EmpowerHER's efficacy through more rigorous trials. Results will inform optimization of the curriculum and partnerships to enhance health equity through community-based youth development initiatives.

## Methods

### Setting

Our study was implemented at a Boys & Girls Club (BGC) in central Texas during summer 2023. The BGC then served approximately 150 youth aged 6 to 18 years old including 63% of children and adolescents who identify as a minority race/ethnicity, 34% who qualify for free or reduced-price school lunch (an indicator for economically challenged families), and 47% who reside in single-parent households (Boys & Girls Club of Washington County, 2018).

### Recruitment and Participants

In the final weeks of the K-12 academic school year, researchers were invited to an open house event hosted at the BGC to inform primary caregivers and recruit girls into the program. During this time, consent forms were distributed to primary caregivers interested in their child/adolescent being involved in the program. Assent forms were also given to study participants. One week prior to the start of the program, researchers used convenience sampling to recruit more girls into the study with help from BGC staff. Girls were also given a \$5 gift card for each session they attended to compensate them for their time and thank them for participation. Girls could receive up to \$40 if they attended

all program sessions. Based on projected capacity and with input from the BGC community partner a cap of 12 was placed on the program. In response, a total of 11 girls were recruited for this program.

### Program Overview

The EmpowerHER program was implemented in June-July 2023. The program objective was to provide an opportunity for girls to engage in fun-filled activities that encouraged PA and SEL. The overall curricular philosophy was to utilize multiple methods and strategies to ensure participant engagement (Jackson, Brown, et al., 2024). Interactive activities aimed to promote social connections, empathy, and positive perceptions of PA were emphasized throughout this program (Jackson, Brown, et al., 2024). The intervention was developed based on Social Learning Theory, which posits that individuals learn by observing and imitating others, and that social interactions play a crucial role in shaping behavior and attitudes (Bandura & Walters, 1977). The Collaborative for Academic, Social, and Emotional Learning (CASEL) (CASEL, 2020) indicates high quality instruction in the classroom must be: sequenced, active, focused, and explicit. Cooperative learning strategies were implemented in the EmpowerHER program to align with these expectations and to fill gaps noted in recent reviews (Jackson, Prochnow, et al., 2024). All SEL activities promoted responsible decision-making, social awareness, and relationships skills. Meanwhile, moments of discussion and reflections were centered on self-awareness and self-management. Researchers conducted 90-minute sessions twice per week for four weeks. Each session was divided into three sections: (1) emotional regulation, (2) PA, and (3) social wellness content (1). Expanded information on the curriculum content and development has

been published elsewhere (Jackson, Brown, et al., 2024).

## Evaluation

### *Systematic Observation of Fitness Instruction Time*

Direct observation of program sessions was conducted using the System for Observing Fitness Instruction Time (SOFIT) to evaluate implementation fidelity (McKenzie et al., 1992). SOFIT utilizes momentary time sampling and interval recording to capture key instructional aspects of PA lessons. Research staff trained in SOFIT methodology attended each EmpowerHER session and conducted live coding. For this study, observations occurred during the components of sessions when participants engaged in purposeful fitness and skill building activities. Coding characterized participant PA levels, lesson context, social interactions, and instructor interactions during these lessons every 20 seconds. Specifically, PA was coded as sedentary, standing, walking, or MVPA. Lesson context codes denoted time spent in motor (specific PA tasks), knowledge content, or transitions. Social interactions were coded as positive verbal, positive physical, negative verbal, and negative physical. Finally, instructor behavior denoted promotion of fitness concepts, demonstrating, instructing, managing, or observing. To operationalize each of these observations please refer to the validation of SOFIT publication (McKenzie et al., 1992). Data informed curriculum fidelity related to student MVPA accrual, lesson targets, and educator support. This methodology aligned with recent recommendations for mixed methods process evaluations using validated observation instruments alongside participant surveys and interviews (Moore et al., 2014). It should be noted that

observations were not recorded for session 4 due to staffing restrictions.

## Accelerometers

Study participants (girls) wore an ActiGraph GT9X accelerometer (ActiGraph Corporation, Pensacola FL) on their non-dominant wrist while participating in each session. Raw accelerometer data collected at 30 Hz were processed using a machine-learned random forest classifier that was specifically designed and validated for assessing PA in school-aged children/adolescents (Chowdhury et al., 2017; Trost et al., 2017). This activity recognition algorithm uses features in the raw acceleration signal to identify and quantify time spent in sedentary activities (sitting or lying down); light-intensity activities; and walking, running, and moderate-to-vigorous intensity activities and games (Chowdhury et al., 2017; Narayanan et al., 2020; Trost et al., 2017). MVPA was defined as the sum of daily time spent walking, running, and engaging in moderate-to-vigorous activities and games. Mean minutes of MVPA and light-intensity activities are reported for each session.

## Self-report Surveys

At the end of each session, girls completed a five-item survey to help the research team understand their perceptions on the activities from each session. The survey included the following questions: “How much did you have fun today?” “How much did you learn today?” and “How much PA did you get today?” with responses coded 1-5: 1 = “Not at all,” 2 = “A bit,” 3 = “Some,” 4 = “A good amount,” 5 = “A lot.” Open-ended response questions were also included: “What was your favorite part?” and “What could we change to make it better?” All responses from the open-ended questionnaire were documented into an excel file. Keywords that

were used repetitively were extracted to describe the frequency and pattern of responses.

### Data Analysis

To describe the curriculum delivery and participant responses in the pilot testing further, descriptive statistics are provided for each EmpowerHER session separately. Specifically, means and standard deviations summarized SOFIT observations, objectively measured MVPA, lesson contexts, instructor interactions, and instructional/pilot-test intervention climate across the eight sessions. Additionally, average enjoyment, perceived competence, intentions for future participation, and preferences for activities are reported from participant survey self-reports collected after every session. Comparing this descriptive data across sessions provides a more nuanced understanding of where curriculum delivery and reception succeeded versus areas needing improvement. For example, lower enjoyability ratings paired with below target student MVPA accrual in certain sessions, might indicate needed adjustments to specific program activities. Alternatively, positive responses coupled with high MVPA could signify curriculum components to retain moving forward. Examining output by session allows pinpointing precise portions requiring modification, as opposed to evaluating the program holistically. This approach aligns with guidance on process evaluations advocating for assessment of pre-specified intervention components to best develop optimizations (Moore et al., 2014). Analyzing delivery and reception per session provides actionable data for incremental quality improvements towards an optimized curriculum ready for wider implementation and efficacy testing.

### Results

Process results are provided by session to describe each in further detail. The SOFIT observations provided insights into the lesson context, PA levels, social interactions, and teacher involvement across eight sessions. Knowledge content ranged from 0% to 66%, with the highest percentages in Sessions 1 (63%) and 3 (66%), while motor content was prevalent in most sessions, particularly in Sessions 2 (80%), 5 (80%), 6 (85%), and 8 (84%). Transition times (i.e., time spent between components of the program) fluctuated between 0% and 38%. PA levels varied, with sedentary behavior ranging from 0% to 63%, standing from 23% to 73%, walking from 5% to 21%, and MVPA from 6% to 26%. The percentage of time spent in sedentary behavior was highest in Session 6 at 63% and lowest in Sessions 1 and 5 at 0%, while MVPA peaked in Session 4 at 26% and was lowest in Sessions 2 and 3 at 6%. Notably, social interactions were primarily positive, with positive verbal interactions being the most common, ranging from 7% to 71% across the sessions. Session 8 had the highest percentage of positive verbal interactions at 71%. Positive physical interactions were also observed, with percentages ranging from 7% to 41%, peaking in Session 5 at 41%. Negative physical and verbal interactions were rare, with only Session 3 showing 1% of negative physical interactions and no negative verbal interactions observed in any of the sessions. Teacher involvement mainly focused on instructing (30% to 54%), managing (12% to 37%), and promoting fitness (9% to 42%). Table 1 shows the complete results.

On average, participants accrued higher light PA ( $M = 18.3$  min,  $SD = 6.1$ ) compared to MVPA engagement per session ( $M = 9.6$  min,  $SD = 4.9$ ). Average total PA fell between

**Table 1***Descriptive process results for each session*

	<u>Session 1</u>	<u>Session 2</u>	<u>Session 3</u>	<u>Session 4</u>	<u>Session 5</u>	<u>Session 6</u>	<u>Session 7</u>	<u>Session 8</u>
<b>Participants</b>	10	9	9	9	8	9	7	6
<b>SOFIT (% of observations)</b>								
<b>Lesson Context</b>								
<b>Knowledge</b>	63%	10%	66%		33%	20%	15%	0%
<b>Motor</b>	63%	80%	33%		33%	80%	85%	84%
<b>Transition</b>	38%	10%	22%		33%	0%	15%	16%
<b>PA Level</b>								
<b>Sedentary</b>	0%	25%	47%		3%	0%	63%	6%
<b>Standing</b>	73%	56%	31%		54%	73%	23%	72%
<b>Walking</b>	21%	13%	12%		17%	15%	7%	5%
<b>MPVA</b>	6%	6%	10%		26%	12%	7%	17%
<b>Social Interaction</b>								
<b>Positive Physical</b>	16%	23%	20%		19%	41%	7%	29%
<b>Negative Physical</b>	0%	0%	1%		0%	0%	0%	0%
<b>Positive Verbal</b>	21%	37%	34%		27%	35%	7%	71%
<b>Negative Verbal</b>	0%	0%	0%		0%	0%	0%	0%
<b>Teacher Involvement</b>								
<b>Promoting Fitness</b>	11%	35%	9%		36%	19%	16%	42%
<b>Demonstrating</b>	23%	31%	20%		27%	23%	45%	11%
<b>Instructing</b>	54%	43%	47%		43%	32%	30%	44%
<b>Managing</b>	36%	37%	27%		29%	13%	12%	22%
<b>Observing</b>	11%	11%	24%		8%	41%	16%	7%
<b>Accelerometer measured minutes of PA M(SD)</b>								
<b>Light activities</b>	16.4 (7.6)	21.0 (5.1)	15.7 (9.1)	16.2 (2.2)	21.1 (6.0)	20.5 (2.0)	18.6 (4.1)	17.0 (5.3)
<b>MVPA</b>	6.0 (3.0)	12.7 (8.0)	7.6 (4.4)	12.6 (2.3)	13.0 (3.1)	9.4 (1.9)	5.9 (1.9)	11.3 (4.0)
<b>Surveys M(SD)</b>								
<b>Fun</b>	4.7 (0.4)	4.6 (0.7)	4.5 (0.5)	4.7 (0.6)	4.6 (1.0)	4.5 (1.3)	4.2 (1.1)	4.8 (0.4)
<b>Learn</b>	3.8 (0.7)	3.8 (1.0)	4.1 (0.7)	4.2 (0.6)	4.3 (0.5)	4.4 (0.7)	4.2 (0.9)	4.3 (0.8)
<b>PA</b>	4.0 (0.9)	4.2 (1.0)	4.2 (0.8)	4.6 (0.5)	4.8 (0.3)	4.7 (0.4)	4.8 (0.3)	4.6 (0.5)

Note.

SOFIT – System for Observing Fitness Instruction Time, PA- Physical activity, MVPA – Moderate-to-vigorous physical activity



these estimates ( $M = 28.0$  min,  $SD = 9.5$ ). Examining patterns session-by-session shows MVPA was highest in Session 5 ( $M = 13.0$  min) and Session 4 ( $M = 12.6$  min) but dropped during Session 7 ( $M = 5.9$  min). Session 2 prompted the most total activity ( $M = 33.7$  min) while Session 3 was lowest ( $M = 23.3$  min). Specifically, MVPA engagement varied across the eight EmpowerHER curriculum sessions. However, Session 5 prompted the highest MVPA accrual at 13.0 minutes ( $SD = 3.1$ ). Session 4 ranked second highest for MVPA at 12.6 minutes ( $SD = 2.3$ ). In contrast, Session 7 only facilitated 5.9 minutes ( $SD = 1.9$ ) of MVPA on average - the lowest amount. Examining the standard deviations shows estimates were more variable earlier in the curriculum (Sessions 1-3).

On average, nine girls ( $SD = 1.4$ ) attended each program session. Regarding the enjoyment of the program (fun), the total mean response was 4.6 ( $SD = 0.3$ ). In terms of session takeaways or how much was learned (learn), the total mean responses were 4.1 ( $SD = 0.1$ ). Self-perceptions of PA engagement (PA) had an overall score of 4.5 ( $SD = 0.2$ ). For reference, these would indicate girls reported learning, having fun, and being physically active between “A good amount” and “A lot.” Content analysis indicated that the girls in the program enjoyed interactive activities with their peers. In many sessions, the girls expressed a strong preference for performing PA related tasks in the gym. For instance, some responses that captured their favorite part in different sessions included “gym,” “going into the gym,” and “when we race.” When it came down to providing feedback on how the sessions could be changed to make sessions better, there was a recurring theme of “having more time in the gym” and “opportunities to be active in that space.” Examples of responses captured for change were “more running,” and “can we start racing.”

Furthermore, girls would enjoy it if the staff and session leaders also participated in running: “have the staff race too!”

## Discussion

We aimed to provide fidelity and process evaluation data for a PA and SEL program called EmpowerHER. By triangulating data from systematic observations, accelerometer-based PA monitoring, and participant surveys, a nuanced understanding of the curriculum's delivery and reception emerged. The SOFIT observations shed light on the curriculum's ability to balance educational components with opportunities for PA engagement, while also highlighting the importance of consistent MVPA throughout the sessions. The accelerometer data provided an objective assessment of the actual PA levels achieved by participants, complementing the SOFIT findings and offering a more comprehensive picture of the program's impact on participants' movement behaviors. Furthermore, the participant surveys offered valuable insights into girls' perceptions of enjoyment, learning, and PA engagement, as well as their preferences for specific activities and areas for improvement.

The SOFIT observations provided a nuanced understanding of the PA dynamics and teacher involvement within the EmpowerHER curriculum. The fluctuating levels of MVPA across sessions, with peaks in Session 4 (26%) and Session 5 (12%) and lows in Sessions 2 and 3 (6%), suggest that the curriculum could benefit from more consistent opportunities for higher-intensity activities. For example, in their study on MVPA among children, Van Camp et al (2022) suggest 30-second bouts of vigorous activity yielded the highest percentages of MVPA in children, which could be a strategy for enhancing MVPA engagement in future interventions. This finding aligns with previous research emphasizing the

importance of maximizing MVPA during child and adolescent PA interventions to optimize health benefits (Fairclough & Stratton, 2006; Pate et al., 2006). Regarding teacher involvement, the high percentages of time spent on instructing (30% to 54%), managing (12% to 37%), and promoting fitness (9% to 42%) highlight the multifaceted role of the instructors in facilitating the curriculum. These results underscore the importance of well-trained and engaged instructors in delivering effective PA interventions (Weaver, Webster, et al., 2018; Webster et al., 2015). Moving forward, the EmpowerHER curriculum could be refined to include more consistent opportunities for MVPA and to provide targeted training for instructors to enhance their ability to promote PA effectively.

The SOFIT results also shed light on the social interactions within the EmpowerHER sessions. The predominance of positive verbal interactions, particularly in Session 8 (71%), and the presence of positive physical interactions, such as in Session 5 (41%), reinforce the curriculum's emphasis on building positive relationships and fostering a sense of connection among participants. These findings align with research highlighting the importance of positive social support, emotion regulation, and peer relationships in promoting PA engagement and adherence among youth (Prochnow, Delgado, et al., 2020; Prochnow, Patterson, Umstadd Meyer, et al., 2022), and that children likely become more socially connected over the course of the summer (Prochnow, Patterson Megan, et al., 2021; Prochnow, Patterson, et al., 2020; Prochnow, Patterson, Bridges Hamilton, et al., 2021; Prochnow, Patterson, Bridges Hamilton, et al., 2022; Prochnow, Patterson, Meyer, et al., 2021). Furthermore, the low occurrence of negative interactions suggests that the program maintained a positive social climate,

which is crucial for fostering a safe and inclusive learning environment (Cipriani et al., 2012). These social interaction findings underscore the potential of the EmpowerHER curriculum to not only promote PA but also to enhance participants' social-emotional well-being. Future iterations of the curriculum should continue to prioritize activities that foster positive social and emotional interactions and build supportive relationships among participants.

A key indicator of curriculum fidelity was minutes of MVPA accrued across sessions. Results aligning with previous research confirm summer camps can facilitate nearly 90 minutes of activity for youth daily by providing outlets for active play and sports (Beets et al., 2016). However, noticeably lower MVPA engagement during some program sessions signal potential issues with overly academic content needing modification. This corroborates previous research demonstrating that outdoor free play fosters the highest activity levels for children compared to seated instruction or classroom-based lessons (Beets et al., 2016). The decline to just 5.9 minutes of MVPA suggests the activities in certain sessions failed to adequately promote physical movement.

Additionally, participant feedback further supports retaining generous time for PA involving running or play, while still balancing emotional and social wellness components. Requests for more opportunities in the gym and integrated running align with preferences documented previously for summer care programs emphasizing recreational choice (Ventura & Garst, 2013). However, positive responses to relatable discussions and creative projects denote the importance of maintaining a blended PA and SEL focus, rather than solely active play. This reinforces conclusions from a recent meta-analysis confirming optimized impacts only come from combined social-emotional skill building and physical health promotion

rather than single-component programs for social-emotional skill building and physical health promotion (Durlak et al., 2010; Moon et al., 2024).

Moving forward, tailoring sessions to allow sufficient PA interspersed with emotion check-ins and relationship building activities provides an incremental optimization towards a refined EmpowerHER curriculum. This nuanced understanding of successes and weaknesses per session provides actionable data to retain effective components and modify fewer effective portions. For example, Session 5 could provide a model for structuring active lessons maximizing engagement and MVPA. Meanwhile, inserting more free play into Session 3 and 7 would likely enhance receptiveness and accrued activity. This approach aligns with guidance on the importance of formative pilot work and process evaluations informing incremental intervention improvements prior to broad dissemination (Moon et al., 2024; Moore et al., 2014).

### **Implications for Health Behavior Research**

The EmpowerHER curriculum delivered through the summer care program setting has salient implications for health behavior efforts aiming to promote equitable access to PA opportunities and social-emotional skill building. With only 26.1% of adolescents in the U.S. meeting PA guidelines (Cooper et al., 2015; Piercy et al., 2018), schools represent a key venue needing health promotion programming given students spend a majority of waking hours in that context across childhood and adolescence. Implementation or adoption of comprehensive school PA programs (CSPAPs) provides one potential vehicle to bring integrated PA and SEL intervention opportunities targeting developmental assets

into school settings (Brusseau et al., 2016). CSPAPs move beyond just physical education to prompt PA through venues like recess, classroom breaks, before/after school programs, staff wellness initiatives, and family/community partnerships (Brusseau et al., 2016). With a more expansive scope, CSPAPs enable tiered interventions meeting universal needs while also tailoring to specific subgroups disproportionately burdened by health disparities. Delivering adapted components of the EmpowerHER curriculum through a CSPAP could provide necessary PA and SEL instruction for adolescent girls needing additional psychosocial and skill-building supports. This might involve pre-identifying at-risk students to enroll in selective interventions led by school health teams. For example, EmpowerHER lessons could be delivered before/after school or during extended homeroom periods. Teacher advisors could also integrate EmpowerHER relationship building activities into regular morning meetings for specific classes. Content learned in these programs would satisfy CSPAP goals targeting lifetime health and development.

Furthermore, schools aiming to enhance community partnerships could implement summer bridge programs delivering the EmpowerHER curriculum or components to rising students needing continued PA and SEL reinforcement across the summer months when these developmental supports normally disappear. Providing program grants to community centers, camps, or youth clubs to scaffold skill building through these transitions represents a systematic opportunity to connect school year health improvements with sustained adoption. Ultimately, appreciating the fluidity of health behaviors and social networks across changing environmental contexts will guide ongoing optimization of EmpowerHER implementation through both school and out-

of-school systems to equitably nurture lifelong wellbeing trajectories.

### **Limitations**

Some limitations of this work warrant consideration including the modest sample size from a single summer program limiting generalizability. Furthermore, participation in the program was less than optimal as other factors such as summer vacations may have limited some participants' ability to attend the program each day. Additionally, self-report survey measures can experience vulnerabilities such as social desirability and recall biases. In this case, more thorough in-depth interviews with participants as well as program staff may have been helpful in providing more context. However, this formative pilot research and comprehensive process evaluation provides a foundation and model set of methods for incrementally assessing integrated PA and SEL interventions tailored towards child/adolescent girls. Understanding fine-grained facilitators and barriers around implementation components will continue guiding data-driven optimization of the EmpowerHER curriculum towards its goal of promoting equitable access to development opportunities during out-of-school time.

### **Conclusions**

In conclusion, this process evaluation enabled nuanced optimization of the emerging EmpowerHER program on a session-by-session basis through triangulating various data sources about curriculum delivery and reception. Results reinforce retaining a blended PA and SEL focus while providing clear guidance to maximize active opportunities and enhance fewer effective sessions through play-based modifications. By iteratively integrating systematic observation, sensor-based PA

estimates, and participant perspectives, the EmpowerHER curriculum improved incrementally while maintaining an intentional balance fostering physical, social and emotional wellbeing. This model of meticulous process evaluation and data-guided optimization can aid translation of similar health promotion efforts into out-of-school time practice. Cumulative optimizations will further strengthen the refined curriculum as an efficacious tool for equitable community youth development pending more rigorous evaluation.

### **Ethics Approval**

All procedures were approved by the Institutional Review Board of Texas A&M University..

### **Conflict of Interest**

None stated.

### **Discussion Questions**

The EmpowerHER process evaluation demonstrated the value of triangulating multiple data sources (systematic observation, accelerometry, participant surveys) to gain a nuanced understanding of intervention delivery and reception. How can this comprehensive evaluation approach be adapted and applied to optimize other types of health behavior interventions beyond PA and social-emotional learning programs?

The article discusses the potential for integrating components of the EmpowerHER curriculum into comprehensive school PA programs (CSPAPs) and summer bridge programs to promote equitable access to health-enhancing opportunities across school and out-of-school contexts. What other community settings or existing health promotion initiatives could benefit from

adopting elements of EmpowerHER or similar integrated interventions to better support the holistic health and development of diverse youth populations?

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