



Physical Activity and Screen Time Practices of Family Child Care Providers: Do They Meet Best Practice Guidelines?

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Abstract

Background: Child care settings significantly influence children's physical activity (PA) and screen time (ST) behaviors, yet less research has been conducted in family child care homes (FCCHs) than in child care centers. While a few studies have measured family child care providers' (FCCPs') PA practices, none have used observation to assess which specific evidence-based, best practice guidelines FCCPs met or did not meet, and no previous studies have included Latinx providers. This article examines FCCPs' adherence to PA and ST best practice guidelines using primarily observational methods with diverse FCCPs (including Latinx).

Methods: We examined baseline data from a cluster randomized trial including surveys and observational data collected at the FCCH to assess whether providers met specific PA and ST best practices from the Nutrition and Physical Activity Self-Assessment for Child Care (NAP SACC) and the American Academy of Pediatrics.

Results: Providers completed a telephone survey and participated in two full-day observations ($n = 127$; 72% Hispanic). Overall, only 4 of 14 PA and ST best practices were met by >50% of providers including: leading a planned PA class more than once a week; no ST during meal or snack; not modeling sedentary behavior; and providing families with information about children's ST. Best practices least likely to be met (<20% of providers) include: providing children with >60 minutes of outdoor play daily; providing children with >45 minutes of adult-led PA each day; participating in outdoor PA with children; participating in indoor PA with children; prompting and praising children for being active; and talking with children informally about the importance of PA.

Conclusions: While FCCPs engage in some positive PA and ST practices, many providers do not meet best practice guidelines. There is a need for more research about how to overcome providers' personal and environmental barriers for meeting these guidelines as well as interventions and supports to overcome these barriers. Clinical Trial Registration Number NCT0245645.

Keywords: child care; exercise; physical activity; preschool children; screen-based behaviors

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Introduction

Childhood obesity has reached epidemic levels in the United States, with 13.9% of preschool-aged children (2–5 years) currently obese.¹ Low-income, racial/ethnic minority children are more likely to be overweight and obese,^{2,3} including a higher obesity prevalence in Latinx (23.6%) vs. non-Latinx White children (13.5%).⁴ Childhood obesity has been known to have substantial consequences for both physical and psychological health.^{5–7} Furthermore, evidence demonstrates that children with obesity are more likely to be obese in adulthood.⁸

Regular physical activity (PA) is important for achieving good health and preventing obesity.⁹ Early childhood is a critical time of development for PA habits, which may persist into adulthood.¹⁰ However, many children younger than 5 years do not get sufficient PA based on national guidelines.^{11,12} In particular, low-income and minority children have more sedentary time compared with higher income and White children.^{13,14} Screen time (ST) behaviors are also associated with childhood obesity.¹⁰ According to the American Academy of Pediatrics (AAP), digital media use for children 2 to 5 years should be limited to ≤ 1 hour/day,¹⁵ whereas many US children fail to meet this guideline.¹⁶

Child care settings significantly influence children's PA,¹⁰ as $\sim 60\%$ of preschool-aged children are in child care.¹⁷ For children in child care, child care settings have been identified as the most important factor influencing, and strongest predictor of child PA.¹⁸ Research has shown that children are more physically active in child care settings with supportive PA environments than in settings with less supportive environments.^{19–22} However, compared with center-based child care, less obesity prevention and PA research has been conducted in family child care homes (FCCHs),^{23,24} which care for more than 1.6 million US children.²⁵

Thus, it is important to explore the PA practices of family child care providers (FCCPs).²⁶ FCCHs are an appealing option for low-income families as they often provide flexible hours and may be more affordable.²⁷ Thus, many family child care providers (FCCPs) care for low-income, ethnic minority children and are often themselves low-income and ethnically diverse.^{3,25,28–30} In addition, FCCPs usually take care of varied aged children at different developmental stages and operate with space constraints,^{18,31–33} which presents particular barriers to providing PA opportunities for children.^{3,18,21,27,34–38}

Evidence-based best guidelines including the Nutrition and Physical Activity Self-Assessment for Child Care (NAP SACC) and the AAP's National Resource Center for Health and Safety in Child Care and Early Education, National Health and Safety Performance Standards recommend at least 90 minutes of daily active play and ≤ 30 minutes of weekly on-screen activities in child care.^{39,40} However, previous research has shown that preschool-aged children cared for in FCCHs do not obtain sufficient PA

relative to these guidelines^{33,41–43} and demonstrate consistently high amounts of sedentary behavior.^{43–45} Furthermore, children enrolled in FCCHs may be more likely to be overweight or obese than those in center-based care.¹⁸ Provider practices do affect children's PA and sedentary behavior,^{22,38,45–47} highlighting the need to assess FCCP activity-related practices.

While a few studies have measured FCCPs' PA practices, those that have either used self-reported measures^{45–48} or reported summary scores of observed FCCP behaviors³⁸ rather than using observation to assess which specific activity-related best practices FCCP met or did not meet. In addition, no previous studies included Latinx providers. Therefore, the purpose of this article was to assess whether FCCP PA- and ST-related practices met evidence-based best practices using primarily observational methods with diverse FCCPs (including Latinx) who participated in the Healthy Start/Comienzos cluster randomized trial.

Methods

Baseline data from Healthy Start/Comienzos Sanos were examined in the current study. Healthy Start/Comienzos is a cluster randomized controlled trial of a multicomponent tailored intervention to promote food and PA environments of FCCH and the diet, PA, and ST behaviors of the 2- to 5-year-old children attending FCCHs.²³ The institutional review board of Brown University approved all study procedures and materials.

A variety of recruitment strategies were used including: (1) information sessions, recruitment flyers, and brochures at community organizations that provide training and support for FCCPs; (2) meetings with the coordinators of FCCP systems who then emailed study information to FCCPs; (3) presentations at regional FCCP conferences; (4) direct mailings followed by staff phone calls to licensed FCCPs whose contact information was publicly available through state databases in Rhode Island and Massachusetts; and (5) word-of-mouth referrals from FCCPs already participating in the study. Interested FCCPs were then contacted by research staff via telephone to assess eligibility. To meet study eligibility requirements, FCCHs had to be within 60 miles of Providence, Rhode Island, and in operation for at least 6 months. FCCPs had to read and speak Spanish or English, provide meals and snacks for children, and care for at least two 2- to 5-year-old children for at least 10 h/week.

Data were collected from November 2015 to July 2018. Eligible providers completed a baseline telephone survey and in-person survey at the FCCH implemented by trained research staff using Datstat Illume software. Once we received consent from at least one parent of an eligible 2- to 5-year-old child cared for in the FCCH, a 2-day observation and measurement session was scheduled at the convenience of the FCCP, as well as anticipated availability of the consented children. We attempted to observe "typical

days” as much as possible, but did note if any unusual occurrences were observed or if the FCCP stated that the events were unusual so that the observation could be discussed later with project leadership and possibly omitted. Observers also noted weather conditions.

Staff members arranged with the FCCP to arrive before the children ate their first meal or snack at the FCCH. Observers positioned themselves to observe up to three children in a convenient location to avoid interfering with the daily routine. If more than three children consented to participate, two or more research staff members conducted the observation. Observers left the FCCH during the children’s naptime and returned to continue with observation until the children left the FCCH to go home. The observation included the Environment and Policy Assessment and Observation (EPAO) and the Dietary Observation in Child Care (DOCC). Only the EPAO data were used for the current analysis. Providers received \$25 for completing the baseline in-person survey and \$50 for the 2-day observation.

Measures Relevant to the Current Analysis

Demographics and other provider characteristics. FCCPs’ gender, ethnicity, and race were assessed on the telephone survey, and age, household income, marital status, education, years in the United States, country of origin, years as a child care professional, number of children currently in their care (and how many are their own children/grandchildren), and whether the FCCH was enrolled in the Child and Adult Care Food Program (CACFP) were assessed on the in-person survey.

Self-reported PA and ST practices. The telephone survey included four questions from the validated NAP SACC self-assessment tool,⁴⁹ assessing: (1) how often (per day, week, or month) a FCCP reported allowing children ST (e.g., television, computer, tablet), (2) how often they reported leading a planned PA education lesson, and whether they provided families with information on children’s (3) PA and/or (4) ST. Best practices for these FCCP behaviors^{39,40} are anchored on time frames outside the 2-day observation window, so we needed to ask FCCPs about the frequency of these behaviors in addition to the observation.

Environment and Policy Assessment and Observation. The EPAO was developed and validated by Co-Investigator Ward and her team to observe practices, environments, and policies within child care centers and FCCHs that influence children’s nutrition, PA, sedentary behavior, and ST.^{50–54} We used the version of the EPAO that was adapted for FCCH.⁵⁰ PA, sedentary behavior, and ST variables used in the current analysis include active and sedentary play opportunities inside and outside, FCCP behaviors that are supportive or unsupportive of PA and ST, and education to children and parents about PA or ST. The observer recorded detailed notes about the environment and the

FCCP’s behaviors during the home visit. Once 2 days of observation were completed in each FCCH, data were entered into a database using Teleform data capture software.

Before baseline data collection, field staff underwent an intensive multiday training in the laboratory to learn about the EPAO instrument, observation procedures, and record keeping by Dr. Ward’s team. After the in-house training, field staff shadowed an experienced observer for a day in an actual FCCH. Both the experienced observer and staff trainee completed an independent full-day EPAO observation with the staff trainee’s records discussed with the trainer afterward. All field staff then completed EPAO certification before independent data collection with a requisite 85% agreement between each staff observer and the gold standard observer.

Meeting best practice guidelines. The list of best practices was primarily from the NAP SACC,³⁹ which was designed to improve nutrition and PA environment in early care and education settings.^{49,55,56} However, we also included some PA and ST best practices from the AAP’s National Resource Center for Health and Safety in Child Care and Early Education, National Health and Safety Performance Standards⁴⁰ that our investigator team deemed important for the study (Table 1). With the help of study investigators, our data manager developed computer algorithms, “if then” statements indicating if baseline survey and EPAO data met certain parameters then the provider met or did not meet specific best practice guidelines (Table 1).^{39,40}

EPAO observational data were used in the algorithms to determine whether FCCPs met the guidelines for: total time spent in PA, outdoor play, adult-led PA, PA informal talk with children, sedentary time, screens during meals, participating in indoor or outdoor PA with kids, modeling sedentary behavior, and encouraging and prompting PA. For example, for the practice of screens being on during meals, the best practice is that the TV or other screen devices should never be on during meal or snack time.^{39,40} The data manager coded the FCCP’s practice as meeting the guideline if their EPAO data indicated that a TV or other screen device was not on and visible from eating area during any observed meal or snack time.

However, a few PA and ST practices referred to a time frame that went beyond the project’s 2-day observation period; thus, self-reported survey data were used in the algorithms for leading a planned PA education lesson at least once per week and providing families with information on children’s PA and ST. For limiting ST to <30 min/week, we used a combination of self-report and observational data in the algorithm. See Table 1 for the complete list of best practices and algorithms used in the study. Which best practices were met and not met were shared with each FCCP on a tailored feedback form as part of the intervention.²³

Table 1. Evidence-Based Best Practices and Data Requirements for Meeting Best Practices Based on the Environment and Policy Assessment and Observation Observational Data and/or Provider-Reported Survey Data

Variable	Best practice	Requirement to meet best practice
Total PA	Provide children with ≥90 minutes of PA each day. ^{39,40}	EPAO data indicate that children engage in at least 90 minutes each day of PA at a level equal to or greater than easy walking.
Outdoor play	Provide children with ≥60 minutes of outdoor play each day. ^{39,40}	EPAO data indicate that children spend at least 60 minutes outside each day.
Adult-led PA	Provide children with ≥45 minutes of adult-led PA each day. ³⁹	EPAO data indicate that children engage in at least 45 minutes each day of adult-led PA.
PA education	Lead ≥1 planned PA lesson each week. ³⁹	On telephone survey, provider reports leading a planned PA education lesson at least once per week.
PA informal talk	Talk with children informally about PA. ³⁹	EPAO data indicate that provider talks with children informally about the importance of PA a little, sometimes, or a lot every day.
Sedentary time	Limit time children are asked to remain seated to <15 minutes/day. ³⁹	EPAO data indicate that children were not asked to remain seated for >15 minutes at a time (excluding indoor play time, circle time, naptimes, and TV time).
Screen time	Limit screen time to <30 min/week. ³⁹	EPAO data indicate that children spent <30 minutes in front of a screen during the two observation days; AND on telephone survey, provider reports children being allowed to spend <30 min/week in front of screens.
Screens during meals	TV should never be on during meal or snack time. ^{39,40}	EPAO data indicate that a TV or other screen device was not on and visible from eating area during any observed meal or snack time.
Participate in indoor PA with kids	Always participate in indoor PA with children. ³⁹	EPAO data indicate that provider plays actively with the children a lot during indoor time on the two observation days.
Participate in outdoor PA with kids	Always participate in outdoor PA with children. ³⁹	EPAO data indicate that provider joins the children’s game outside, plays with children outside, and participates in a chasing game with children a lot during outside time on the two observation days.
Do not model sedentary behavior	Do not model sedentary behavior. ^{39,40}	EPAO data do NOT indicate that provider watches TV or uses other screen time during the two observation days.
Encourage PA	Always prompt and praise children for being physically active. ^{39,40}	EPAO data indicate that provider prompts and praises children for being physically active and prompts them to increase their PA a little, sometimes, or a lot during the two observation days.
Parent communication PA	Provide families with information on children’s PA. ^{39,40}	On the telephone survey, provider reports giving families information on (1) the amount of time children should spend being physically active, (2) encouraging children to be physically active, (3) limiting long periods of seated time for children, (4) the amount of time children should spend playing outdoors, and (5) using the outdoors to encourage children’s active play.
Parent communication screen time	Provide families with information on screen time for children. ^{39,40}	On the telephone survey, provider reports giving families information on (1) the amount of screen time children should have, (2) why it is important to limit screen time, and (3) other activities children can do instead of screen time.

EPAO, Environment and Policy Assessment and Observation; PA, physical activity.

Statistical Analyses

We used three different baseline data sources from the trial; thus, the sample size differs for some variables as not all providers who completed the baseline telephone survey (*n* = 166) went on to complete the in-person survey (*n* = 127) or observations (*n* = 119). We examined the proportion of providers whose observed practices met and did not meet best practice guidelines.^{39,40} All analyses were performed using SAS version 9.4 (SAS Institute, Cary, NC).

Results

The demographic characteristics of the providers are presented in Table 2. FCCPs were all female, and the majority were Latinx. FCCPs were on average 48.4 years old and 11% had no high school education. Lowest income providers (<\$25,000) represented 14% of the sample. FCCPs had an average of 7.8 children in their care.

Table 2. Family Child Care Provider Demographics

Variable	Category	% (n)
Gender ^a (n = 166)	Female	100 (166)
Age ^b (n = 127)	<34 years	6.5 (8)
	35–44 years	22.8 (28)
	45–54 years	40.7 (50)
	55–64 years	26.8 (33)
	65+ years	3.3 (4)
	Mean age ^b (n = 127)	
Provider's race ^a (n = 145)	American Indian/ Alaska Native	5.5 (8)
	Black/African American	15.9 (23)
	Native Hawaiian/ Pacific Islander	2.8 (4)
	White/Caucasian	41.4 (60)
	Unknown	32.4 (47)
	More than one	2.1 (3)
	Which of the following best describes your level of education? ^b (n = 123)	No HS diploma or GED
	HS Grad or GED	31.7 (39)
	Associate degree	38.2 (47)
	Bachelor's degree	15.4 (19)
	Master's degree or higher	3.3 (4)
What is your total yearly household income from all sources? ^b (n = 119)	Less than \$25,000	14.3 (17)
	\$25,001 to \$50,000	48.7 (58)
	\$50,001 to \$75,000	21 (25)
	\$75,001 to \$100,000	10.1 (12)
	\$100,001 or more	5.9 (7)
What country were you born in? ^b (n = 118)	United States	29.7 (35)
	Caribbean	48.3 (57)
	South America	13.6 (16)
	Central America	3.4 (4)
	Africa	3.4 (4)
	Other	1.7 (2)
What is your marital status? ^b (n = 123)	Single, never married	9.8 (12)
	Married or living with a partner	73.2 (90)
	Divorced	8.9 (11)
	Separated	4.9 (6)
	Widowed	3.3 (4)

continued

Table 2. Family Child Care Provider Demographics continued

Variable	Category	% (n)
How many of those enrolled children are your own children or grandchildren? ^b (n = 123)	0	64.2 (79)
	1	18.7 (23)
	2	13 (16)
	3	3.3 (4)
	4	0.8 (1)
Does your child care home accept CACFP subsidies (also known as the food program)? ^b (n = 123)	Yes	82.1 (101)
	No	17.9 (22)
Mean years lived in the United States ^b		26.1
Mean number of children in FCCH ^b (range 1–16)		7.8
Mean years working in early childhood profession ^b		13.6
^a Phone survey.		
^b In-person survey.		
CACFP, Child and Adult Care Food Program; FCCH, family child care home.		

Meeting Best Practice PA Guidelines

Only one of the eight PA guidelines was met by a majority of FCCH: leading a planned PA class more than once a week (86%). Less than 40% of providers met the guidelines for the following practices: providing families with information about children's PA (38%); providing children should be: with ≥60 minutes of outdoor play daily (24%); and providing children with ≥90 minutes of indoor or outdoor PA daily (23.5%) (Table 3).

Less than 20% of providers met the guidelines for the following practices: talking with children informally about the importance of PA (13%); participating in indoor PA (8%) and outdoor PA (2%) with children; providing children with ≥45 minutes of adult-led PA each day (3%); and prompting and praising children for being active (1%) (Table 3).

Meeting Sedentary Behavior and ST Guidelines

A majority of FCCP met three of the six best practice guidelines related to sedentary behavior and ST: no TV during child's meal or snack (72%); not modeling sedentary behavior (71%); and providing families with information about children's ST (54%). Less than one third of providers met guidelines for the following practices: limiting ST to <30 min/week (30%), and limiting the time that children are asked to stay seated to <15 minutes at a time (28%) (Table 3).

Table 3. Percent (Number) of Family Child Care Providers Meeting Physical Activity and Screen Time Best Practices

Variable	All, % (n)
PA best practices	
Lead a planned PA class 1 or more times/week	85.7 (102)
Provide families with information on PA for children	37.8 (45)
Provide children with 60 minutes or more of outdoor play each day	24.4 (29)
Provide children with 90 minutes or more of indoor or outdoor PA each day	23.5 (28)
Talk with children informally about the importance of PA	12.6 (15)
Always participate in indoor PA with the children	7.6 (9)
Provide children with 45 minutes or more of adult-led PA each day	3.4 (4)
Always participate in outdoor PA with the children	1.7 (2)
Always prompt and praise children for being PA	0.8 (1)
Screen time best practices	
TV should never be on during meal or snack	72.3 (86)
Do not model sedentary behavior	71.4 (85)
Provide families with information on screen time for children	53.8 (64)
Limit screen time to <30 min/week	30.3 (36)
Limit the time children are asked to remain seated on any occasion to <15 minutes at a time	27.7 (33)

Discussion

The child care setting is important in influencing children's PA levels²¹ as young children in child care may obtain most of their PA in this environment,⁵⁷ and children in child care settings with supportive PA environments are more physically active than settings with less supportive environments.^{19–22} The goal of this article was to assess whether FCCPs met PA and ST best practice guidelines. Overall, only 4 of the 14 activity-related best practices were met by >50% of FCCPs.

PA Best Practices

Regarding PA, only one best practice was met by the majority of FCCPs, with 86% reporting that they lead a planned PA class more than once a week, which is similar to the findings of Trost et al.⁴⁸ However, a large proportion of FCCPs in the current study did not meet best practice guidelines related to providing PA for the children in their care, including providing children with appropriate

amounts of indoor or outdoor play, participating in indoor and outdoor PA with children, or providing adult-led PA daily. FCCP participation in PA and providing opportunities for outdoor play are two of the most important practices that promote PA in young children.⁵⁸

Only 24% of FCCPs provided children with at least 60 minutes of daily outdoor play, which is concerning because outdoor play is a strong predictor of moderate-to-vigorous physical activity (MVPA).^{22,59} Furthermore, only 13% of FCCPs talked with children informally about PA and <1% always prompted or praised children for being physically active, which is concerning because studies have shown that prompts by child care staff and encouragement of indoor play significantly predict children's MVPA.^{22,47}

Sedentary Behavior and ST Practices

We found that >70% of FCCPs provided families with information about children's ST, did not model sedentary behavior, and did not keep the TV on during meals or snacks. While these findings are encouraging, less than one third of FCCPs limited the time children remain seated to <15 minutes, or limited ST to <30 min/week. Other studies have found high rates of sedentary behavior and ST in FCCCHs.^{42,44,60} Trost et al. found that more than 40% of FCCPs reported that children were seated (excluding naptime) for >30 minutes at a time each day; 65% reported that the TV was turned on every day for at least part of the day; and 55% reported that children were allowed to watch TV or videos or play video games at least once a day.⁴⁸ A systematic review reported that preschoolers spent ~1.8 to 2.4 hours/day engaged in ST in home-based child care.⁶⁰ One reason for this is that many FCCPs believe that educational television benefits young children.^{34,35}

Parent–Provider Communication

In the current study, over half of FCCPs reported that they provided families with information on ST for children, but <40% reported that they provided families with information on PA for children. This was self-reported data, so it is unclear what kinds of information were provided to parents and how often. In previous research, highly trained FCCPs were more likely to disseminate healthy obesity prevention information to children and parents than less trained FCCPs.⁶¹ If parents and child care providers are aligned about children's PA and ST needs and limits, this could facilitate healthy environments both in child care and at home.

Best practices often represent the highest possible standards and are often beyond what FCCPs are required to do by their state licensing regulations; thus, it is not surprising that some FCCPs in our study did not meet activity-related best practices. However, best practice guidelines are evidence-based, and while aspirational, they do represent the best practices for obesity prevention in child care. By comparing FCCP practices to best practice

guidelines, we can identify areas of greatest need, which can inform future interventions and policy decisions related to state regulations.

Barriers to Meeting Best Practices

Previous research has shown that FCCPs often have barriers for providing PA to children, such as the lack of space, training, time, or equipment, financial limitations, and concerns surrounding child safety.^{3,21,34-37} It can also be difficult to engage children in a way that suitably encourages PA for the wide age range of children present in FCCHs.^{35,62,63} Physical barriers such as inclement weather, extreme temperatures, and unsuitable clothing may also prevent children from playing outside.^{3,62-64}

The FCCH physical environment can also be a barrier to children's PA^{18,37,38} Portable play equipment is a strong correlate of children's PA participation.^{38,65} In qualitative research, FCCPs have expressed that inadequate outdoor play space is a barrier to PA.^{3,34,37} Data from two FCCH-based studies demonstrated that adequate indoor space was significantly associated with children's PA, even more so than outdoor play space.^{38,46} Hence, a potential way to increase PA in FCCHs could be to target the physical environment, such as providing resources for PA equipment appropriate for FCCHs and using creative ways to arrange the space to offer more room for active play in addition to providing PA training to FCCPs.⁶⁶

Nonphysical barriers to children's PA and ST in FCCH also include cultural beliefs and difficulty in working and collaborating with parents.^{34,36,37} Providers acknowledge that their decisions impact child PA⁶⁷; for example, they often prefer to limit noise, and active children can be noisy.⁶⁸ Other provider priorities may also compete with PA for time. Providers have reported viewing their primary roles as keeping children safe, modeling kindness, and preparing children for school, with PA largely being the responsibility of parents.^{19,61,68} FCCPs have also stated that parents may not be supportive of children's PA.^{32,35}

Provider's attitudes about their role in helping children to be physically active may also have an influence on their lack of engagement in PA. Some providers believe that children do not need teacher encouragement to be physically active, that young children require only a short amount of PA each day, and that children in their care are already naturally active, obtaining enough PA through normal daily activities and outdoor play.^{3,19,57,67} Child care providers may also perceive that they have less impact than parents and the home environment on the PA of children, but this may be less common among FCCPs than center-based providers.⁶¹

Personal hesitation or apprehension to go outdoors or fatigue from the demands of child care work may further derail efforts for FCCPs to lead PA and provide outdoor play time.^{21,63,67} FCCPs' ability to model PA behaviors for children in their care may be limited by their low self-efficacy to participate in PA themselves.⁶⁹ A study with FCCPs in North Carolina found that almost all (90%) were

overweight or obese with approximately half not meeting national guidelines for PA,²⁸ and this issue was more marked in older providers who may believe that they should not exercise due to health conditions such as arthritis, back pain, and circulatory problems.²⁸ Changing FCCP attitudes, beliefs, and self-efficacy about engaging children in PA could be a focus for future interventions.

FCCP practices such as provision of sufficient outdoor active play, active play using portable play equipment, the presence of a variety of fixed and portable play equipment, suitable indoor play space, engaging in active play with children, and receiving activity-related training have been shown to be associated with higher child levels of PA^{38,46} and lower levels of sedentary time.⁴⁵ Our findings showed that such practices are not always being done in FCCH, suggesting the need for training, support, and/or interventions to improve FCCPs' PA practices. Trost et al. found that providing training to FCCP resulted in improvement of self-reported PA practices,^{46,47} and Ward et al. found that a multicomponent intervention resulted in changes in FCCPs' time provided for PA, use of supportive PA practices, and engagement in PA education/professional development, but not in children's PA.⁷⁰ Thus, more PA intervention research is needed in FCCH.^{70,71}

Limitations

The study sample may not be representative of all FCCPs as participating providers were recruited for an intervention study and could have been more interested in health than the general FCCP population. The study also purposely over-recruited Latinx FCCPs, as they have largely been ignored in prior research. Furthermore, while most of the data on meeting PA and ST practices were collected via observation, which is a strength, we used provider-reported survey data for certain best practices based on weekly or longer time frames. Thus, these responses could be biased by social desirability and recall. While observational data are generally considered to be more accurate than provider-reported data, observing PA- and ST-related behaviors for just 2 days may not accurately reflect the long-term patterns within an FCCH nor the full variability in behaviors.

Although observers were trained to be as unobtrusive as possible, FCCPs may have altered their behaviors on observation days to reflect their perceptions of desired practices. However, we believe that this is unlikely given that our observed data generally demonstrated meeting fewer guidelines than FCCP-reported data. Assessing PA from observation is not completely objective, and this study did not employ multiple observers during each observation to calculate inter-rater reliability. However, the EPAO has been validated and the observers were well trained and certified using strict protocols.²³ Inclusion of both 2-day observational data and provider-reported data provides a more robust assessment of practices than either measure alone might provide.

Conclusions

This is the first study using observational data to identify whether FCCP (majority Latinx) met specific PA and ST best practices. We found that only 4 of the 14 PA and ST best practices were met by the majority of FCCPs. As research suggests that the child care environment accounts for roughly 50% of the variation in preschoolers' PA,⁷² assuring adequate PA in child care settings is important. Future research should seek to better understand providers' personal, cultural, social, and environmental barriers to meeting PA and ST best practices in the FCCH setting and how to overcome these barriers.^{71,73}

To improve PA- and ST-related practices in FCCH and support continuous program improvement, provider training, technical assistance, and environmental supports are recommended including providing specific training in provider-led PA and time management to increase child PA.⁴⁶ Policy and environmental changes may need to be instituted to increase PA and ST best practices in the FCCH setting including reorganizing FCCHs' indoor and outdoor PA environments to allow for more gross motor activities,^{38,42,70} offering PA activity equipment and active ST resources that help engage children of different ages in MVPA,^{37,70,74} and/or addressing safe PA opportunities in the FCCH neighborhood.^{75,76}

In addition, there is a need to design and evaluate interventions to improve FCCP attitudes, self-efficacy, and practices to provide children with more outdoor and indoor play, participate in and lead PA with children, prompt and praise children for being active, and talk with children and parents about PA.^{45,46,70} Child care settings are well positioned to directly influence child PA and ST as well as to indirectly influence family practices by sharing information and strategies to increase PA and decrease ST in the home,⁷⁷ with the ultimate goal of improving children's overall PA and ST. In their review of child care PA interventions, Jones et al. concluded that future studies need to consider creative and unique ways of delivering child care-based PA interventions.⁷¹

More research is also needed on which specific provider PA and ST practices most affect children's PA and sedentary behavior; thus, more studies should examine the relationship between FCCP practices and objectively measured children's PA levels in FCCH.^{45,46} Increasing PA and decreasing sedentary time and ST in child care can help children gain the full developmental, mental, and physical health benefits of PA.⁷⁸

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Ethics Approval Statement

The institutional review board of Brown University approved all study procedures and materials.

Data Availability Statement

The data that support the findings of this study are available from the corresponding author, K.M.G., upon reasonable request.

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Author Disclosure Statement

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