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Physical activity practices, policies and environments in Washington State child care settings: results of a statewide survey

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Abstract

Introduction—Child care is an important setting for the promotion of physical activity (PA) in early childhood. The purpose of this study was to examine the associations between specific PA environments and recommended practices in child care settings as well as the degree to which child care settings met recommended standards for total PA time.

Methods—In 2013, all programs licensed to care for children ages 2 to 5 in WA state were surveyed about their PA related practices. Logistic regression was used to determine odds of meeting best-practice standards for outdoor time and PA.

Results—The response rate was 45.8% from centers (692/1,511) and 32.1% from homes (1,281/3,991). Few programs reported meeting best-practice standards for the amount of time children spend being physically active (centers: 12.1%, homes: 20.1%) and outdoor time (centers: 21.8%, homes: 21.7%). Programs where children go outside regardless of weather and those reporting more adult-led PA had higher odds of meeting best-practice standards for both PA and outdoor time. Meeting best-practice standards for outdoor time was the strongest predictor of meeting best-practice standards for total PA time (centers: OR 15.9 (9.3 – 27.2), homes: OR 5.2 (3.8–7.1)).

Conclusions for Practice—There is considerable room for improvement in licensed child care settings in WA to meet best-practice standards for young children's outdoor and PA time. Initiatives that create policies and environments encouraging outdoor play and adult-led physical

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Ethical Statement:

The human subjects division at the University of Washington determined the survey procedures and study were exempt from IRB review.

Author Disclosure Statement

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activity in child care have the potential to increase physical activity in substantial numbers of young children.

Keywords

Child care; Children; Physical activity; Policy; Preschool

Introduction

Early childhood environments and behaviors contribute to lifelong health and development (Herman et al., 2014). Child care settings influence the risk of obesity at kindergarten entrance (Maher, Li, Carter, & Johnson, 2008) and the physical activity (PA) levels of young children (Delaney, Monsivais, & Johnson, 2014). PA lowers the risk of obesity in children, is independently associated with numerous benefits related to health and well-being, and has protective longitudinal effects on acquisition of body fat from preschool-age to adolescence (L. L. Moore et al., 2003).

Young children spend a significant portion of their time in child care settings, making them important settings for promoting healthy behaviors. In 2012, nearly 11 million children under the age of 5 in the U.S. spent time in an out-of-home care setting, spending on average 35 hours per week in child care ("Child Care in America: 2014 State Fact Sheets," 2014). In Washington State (WA) in 2012, an estimated 128,543 children were enrolled in 5,656 licensed child care facilities (D. Moore, 2012).

Formative evaluation informs efforts to create optimal child care environments to promote PA (Gunter, Rice, Ward, & Trost, 2012; Hecht et al., March 2009; Sisson et al., 2012; Trost, Messner, Fitzgerald, & Roths, 2009). Research about the degree to which child care programs are achieving expert recommendations for PA and the extent to which they are implementing best practices, provides policy makers, maternal child health and early care and education professionals, parents, and other stakeholders with important information for future investment and intervention. Since child care policies vary state by state in the U.S. (Duffey, Slining, & Benjamin Neelon, 2014), examining trends on the state level can help increase understanding of child care policies and practices across the country.

In 2013, the Washington State Department of Health, Public Health – Seattle & King County, and the University of Washington Center for Public Health Nutrition (CPHN) conducted a statewide nutrition and physical activity survey of licensed child care programs in WA. The primary aims of this analysis of the physical activity data from the survey were to establish the current status of PA environments, policies, and practices in child care settings in WA and to examine the associations between specific policies and practices and achievement of best-practice standards for outdoor time and total PA time.

Methods

Overview

All programs licensed to care for toddlers and preschoolers (children ages 2 to 5) in WA were invited to participate in a cross-sectional, self-report survey focused on nutrition and

PA practices and policies for toddlers and preschoolers. The recommended practices and standards were drawn from evidence-based national health performance standards for early care and education programs and are aimed at preventing childhood obesity in these settings (*Caring for our children: National health and safety performance standards; Guidelines for early care and education programs.*, 2011; “Let’s Move! Child Care guidelines,” 2015; D. Ward et al., 2014).

Tool development and pilot testing

To develop the survey, an advisory committee composed of experts in child care, health, and evaluation reviewed current recommendations, standards, and research related to promoting healthy weight for toddlers and preschoolers in child care. Included in the review were existing instruments previously used in state or local assessments of nutrition and PA in early care and education settings. Four instruments (Bellanca, 2011; Hecht et al., March 2009; Henderson et al., 2011; D. Ward et al., 2014), especially the *Nutrition and Physical Activity Self-Assessment for Child Care* (NAP SACC) (D. Ward et al., 2014), guided the development of this survey tool. Ultimately, two self-report survey tools were developed—one for center directors and one for home-based providers (“The 2013 Washington State Survey of Nutrition and Physical Activity in Child Care,” 2013). The survey tools varied slightly in how questions were phrased in order to be applicable to the different child care settings (center- versus home-based care), but were otherwise very similar. Both the online and mailed paper copies of the survey tools were in English and Spanish. Certified translators produced the Spanish-language content. The English-language online versions of both the center director and FHCC provider surveys were pilot tested. Twenty-one people (8 center directors and 13 FHCC providers) from geographically diverse areas of the state participated in the survey pilot test and follow-up cognitive interviews.

Each survey tool contained 82 main questions with some corresponding follow-up questions (153 total questions) related to nutrition and PA for toddlers and preschoolers in child care. Topic areas included program operations, time for indoor and outdoor PA and active play, active play environment, program policies, provider training, communication with families, respondent demographics, challenges, attitudes and beliefs. Programs were also asked about their enrollment in *Early Achievers*, WA’s voluntary quality rating and improvement system for child care (“Early Achievers, Washington’s Quality Rating and Improvement System,” 2010). Each question had four or five response choices along a continuum of incrementally better practice. The 12 PA questions used in the present study were adapted from NAP SACC and asked about policies or practices that have either a demonstrated (evidence-based) or perceived (expert-based) relationship to promoting healthy weight in children (Benjamin et al., 2007; D. Ward et al., 2014). NAP SACC is a stable and reasonably accurate instrument for use in child care settings (Benjamin et al., 2007). Best practice recommendations vary by age groups to reflect the distinct developmental stages of a 2-year old versus a 3-year old. Questions were written with respect to various age groups (either 2 to 5 year olds or 3 to 5 year olds) in order to assess alignment of responses with existing best practice recommendations for those age groups.

Recruitment strategy

The Washington Department of Early Learning provided a complete list of all licensed programs. This list served as the survey sampling frame and contained basic program information including providers' names, business and mailing addresses, phone and email contacts, child capacity, and age range of the children in care. At the time the survey was administered, 5,507 licensed child care programs (1,511 centers, 3,991 homes) in WA were caring for children aged 2 to 5. Based on modeling of different sampling strategies and anticipated response rates for a mixed-mode survey design (Internet and mail), CPHN decided to survey all 5,507 programs. Email addresses were available for 5,364 programs (97%), enabling a heavily Internet-based survey administration.

Survey administration

CPHN closely followed Dillman's Total and Tailored Design Methods for Internet and mail surveys to contact the survey population and administer the survey (Dillman, Smyth, & Christian, 2009; Hoddinott & Bass, 1986). To maximize response rates, many of Dillman's techniques, which are based on social exchange theory and emphasize visual design, were carefully implemented in the pre-survey notification letter, survey tool cover letter, survey tool, and weekly reminders (emails or postcards). Additionally, CPHN offered incentives for completing the survey. Incentives included access to an online resource guide for child care programs on nutrition and PA, as well as entry into a drawing for cash value incentives. The cash value incentives included three iPads worth \$1000 each, 20 gift cards worth \$50 each, and 350 gift cards worth \$10 each. The survey was open from October through mid-December 2013. No parties involved in the administration of the survey were involved in child care licensing or routine inspections, and participants were assured that their survey answers would be kept strictly confidential.

Defining Standards and Data analysis

National recommendations and guidelines for the optimal amount of PA and outdoor play for young children vary. Table 1 includes a summary of various best-practice recommendations and WA state licensing requirements for both outdoor play and physical activity time. Since all of these recommendations are based on varying expert opinions, we analyzed the data using a two-tiered approach. We focused our analyses on "best-practice" standards as the upper time limits amongst these standards (i.e. 90 minutes of outdoor time; 120 minutes of PA time) but also defined "minimum" standards as the lower time limits amongst these standards (i.e. 60 minutes of outdoor time; 90 minutes of PA time).

Continuous measures were summarized using means and standard deviations, and categorical variables using frequencies and proportions. Logistic regression models were used to determine the odds ratios of meeting best-practice standards for outdoor time and PA based on various child care program and respondent characteristics. Analyses were conducted separately for home-based and center-based programs. An additional analysis combined homes and centers and used an interaction term to compare the odds of homes meeting best-practice standards to the odds of centers meeting best-practice standards for both physically active time and outdoor time. These analyses controlled for respondent race, ethnicity, education, and first language. Data analysis was performed in 2014 and 2015.

Results

There were 1,973 completed surveys for a response rate of 45.8% from the centers and 32.1% from the homes. In general, the percent of survey respondents by child care type from the four geographic regions of WA closely aligned with the percent of total licensed child care providers in each region (data not shown).

Table 2 shows the descriptive characteristics of the child care centers and homes as well as those of the respondents. Most respondents were white, although homes' respondents were more racially diverse overall (29.9% non-white versus 15.9% in centers). Most respondents spoke English as their first language, and had some college education or an associate's degree.

Table 3 shows rates of various reported PA practices. A majority of child care programs reported meeting the minimum PA standard of at least 60 minutes per day for children ages 3–5, while only a small percentage reported meeting the best-practice standard of at least 120 minutes per day. Similarly, most programs reported meeting the minimum outdoor time standard for children ages 2–5 of at least 60 minutes per day while a smaller proportion of programs reported meeting the best-practice outdoor time standard of at least 90 minutes per day. While 41.6% of centers and 58.0% of homes reported no major challenges to providing more PA to children at child care, only 12.1% of centers and 20.1% of homes actually met the best-practice standards for PA time.

Table 4 shows odds ratios for best-practice standards for PA and outdoor time based on a variety of characteristics, and the odds ratios comparing the odds of homes relative to the odds of centers to meet best-practice standards. Outdoor time was the strongest predictor of meeting best PA practices in both centers and homes.

When comparing homes versus centers, a significant difference was found in the odds ratios of meeting the best-practice for PA time in two predictor categories: reporting space-related issues as a challenge for providing physically active time (OR: 1.88, $p < 0.05$), and reporting providing 90 minutes or more of outdoor play time per day (OR: 3.062, $p < 0.001$). Both of these odds ratios represent the odds ratios of homes against those of the centers. These predictors, although significant for both types of programs, were more strongly associated with best-practice PA time standards in homes than centers.

Discussion

The results of this survey indicate that WA child care programs have substantial room for improvement in terms of meeting best-practice standards for preschoolers' PA and outdoor time. Evidence-based policy changes have the potential to influence child care settings that currently do not meet best-practice standards. A recently published paper modeling the cost effectiveness of child care policy changes in the U.S. found that implementing a multi-component regulatory policy in US child care facilities including the increase of PA opportunities for children in full-time care to at least 90 minutes a day could lead to an increase in children's physical activity, a reduction in child BMI, and result in substantial net healthcare cost savings (Wright et al., 2015). There are many opportunities in WA for

improvements to take advantage of these potential benefits to children and society. In 2012, WA State regulations for child care centers and family home child care (homes) included only 6-out-of-47 best-practice standards related to nutrition, infant feeding, and PA/screen time (*Achieving a state of healthy weight: 2012 update*, 2013). Associations between specific policies, practices and environments and meeting minimum and best-practice OP and PA standards can provide insights as to which areas deserve the most emphasis to improve physical activity in child care settings.

The strongest predictor by far of meeting best-practice PA time standards was the amount of outdoor time provided by the programs, consistent with previous findings that children at child care are more active outdoors compared to indoors (Gunter et al., 2012; Raustorp et al., 2012; P. S. Tandon, Saelens, Zhou, Kerr, & Christakis, 2013). Furthermore, a previous study found that about half of preschool-age children are not going outside with their parents daily (P. S. Tandon, Zhou, & Christakis, 2012), making child care an important setting for daily outdoor play opportunities. Child care settings which reported that children go outdoors for playtime even in unfavorable weather had significantly higher odds for meeting best-practice standards for both outdoor and PA time. Together, these findings all suggest that policy changes and interventions targeting outdoor time may be a worthwhile endeavor. The finding that space for active play and providing 90 minutes or more outdoor play time were stronger predictors of meeting best-practice physical activity standards suggests that related actions, while important for all child care centers not meeting best-practices, may have a greater impact in child care homes.

Given the strong association between outdoor time and meeting best-practice PA standards, child care programs that keep children indoors in less favorable weather are missing many opportunities for active play. Some programs reported lack of adequate clothing and shoes as a major barrier to providing PA for children. Previous qualitative research with child care providers has also raised the issue of parents not sending children to school adequately dressed for outdoor time (Copeland, Sherman, Kendeigh, Saelens, & Kalkwarf, 2009). This suggests there may be opportunity for improvement through strategies to assure that all children are prepared daily for outdoor time, whether that involves parent education or other programmatic changes such as keeping extra protective clothing at school.

There were significant associations between adult-led PA and increased odds for meeting best-practice standards for both PA time and outdoor time. In centers and homes, staff involvement during playtime was significantly associated with meeting best-practice standards for outdoor time. In homes, it was also associated with best-practice standards for physically active time. These findings are supported by studies suggesting that adult-led PA in child care is positively associated with PA for children (Alhassan, Nwaokelemeh, Lyden, Goldsby, & Mendoza, 2012; D. S. Ward, Vaughn, McWilliams, & Hales, 2010). However, many earlier studies tested the impact of outside experts coming into the center to lead physical activities for the children, which may not be feasible or sustainable for most child care programs. The question of how best to increase teacher-led active play in child care remains unanswered. Specific support and training on providing teacher-led, structured PA opportunities for children may be important. Adult-led active play could provide additional benefits such as inclusion of more children in the activities, incorporation of cognitively-

oriented curriculum into physical activities, instruction on fundamental movement skills, and more PA for the participating adults. When asked about types of outdoor activities provided to children, providing active adult-led play, planned lessons and active outdoors experiences (field trips, seasonal activities) were the most common responses. These findings, combined with the high odds of meeting best-practice standards associated with both adult-led active play and more outdoor time, suggests that providing resources and training to promote outdoor active adult-led play and could increase the number of programs meeting best-practice PA time standards.

A large number of survey respondents were from programs that were enrolled in WA's quality rating and improvement system (*Early Achievers*), but enrollment was not associated with meeting best-practice standards. *Early Achievers* uses an easy-to-understand rating system for families and offers coaching and resources to child care providers for areas such as curriculum and learning environment, professional development and training, and family engagement and partnership ("Early Achievers, Washington's Quality Rating and Improvement System," 2010). Assessment, training and reporting on PA opportunities are currently not part of the *Early Achievers* process. As recommended by the Centers for Disease Control and Prevention, Spectrum of Opportunities for Obesity Prevention in the Early Care and Education Setting (ECE) ("Spectrum of Opportunities for Obesity Prevention in the Early Care and Education Setting (ECE): CDC Technical Assistance Briefing Document,"), incorporation of PA quality metrics into a state-wide rating and improvement system could be beneficial for increasing the number of programs that meet best-practice standards for PA and outdoor play. Further, better alignment between best-practice standards and the state's licensing regulations and quality rating and improvement system could help to improve PA practices across early learning settings.

A few other US states have surveyed PA practices in their child care settings, but direct comparisons are not straightforward given different methodologies. A study of programs in California showed 53% of sites reporting to provide at least 60 minutes of PA time daily (Hecht et al., March 2009), as compared to 63.4% of centers and 60.4% of homes in Washington. Studies of home-based child care in Oregon and Kansas showed 81.1% and 78.3% of homes reporting to provide at least 60 minutes of PA time daily, respectively (Gunter et al., 2012; Trost et al., 2009). An Oklahoma-based study showed 51.5% of centers providing at least 90 minutes of PA time daily (Sisson et al., 2012).

This study had some limitations. There is a possibility of selection bias, with programs that are more likely to meet standards also being more likely to respond to the survey. However, the survey was offered in both English and Spanish and via Internet and mail in order to provide opportunities for response from a wide variety of child care facilities. There were some categories in which results for homes reached statistical significance but not centers, which may in part be due to the larger sample size of homes. A large proportion of respondents were white which may not be representative of the true distribution of races of all child care center directors/family home child care owners. A 2012 statewide child care survey performed by Washington State University had a more diverse response group, with 60.8% of responding family home child care owners being white (D. Moore, 2012) compared to 70.1% of responding family home child care owners in this survey. Also, while

all licensed child care facilities in the state of Washington were invited to participate in the survey, unlicensed and informal child care settings and arrangements are not included. All of the information was self-reported, so it is possible that programs that reported meeting best-practice standards for the amount of PA time and outdoor time were also more likely to report following other PA practice recommendations. It is also possible that respondents were over reporting the amount of time that children were physically active on a daily basis. While most programs reported meeting the minimum standard of at least 60 minutes per day, direct observational studies have shown that preschoolers are provided with an average of 48 minutes of active play opportunities per day (Pooja S. Tandon, Saelens, & Christakis, 2015). In the case of centers, the surveys were primarily filled out by the directors or main providers at each program, who may not necessarily be the ones implementing some of the practices described in the survey, particularly in larger child care programs. There are also other potentially important predictors such as teaching staff experience and education, which were not explored in this survey (the questions focused only on the single respondent's experience and education). Finally, WA may face unique opportunities and challenges in regards to PA and outdoor time at child care, in part due to the local climate and weather, and these results may not be generalizable to child care facilities in other geographic areas.

Conclusions

There is considerable room for improvement in licensed child care settings in Washington State to meet best-practice standards for young children's outdoor time and PA. Initiatives that create policies and environments that encourage outdoor play and adult-led physical activity in child care have the potential to increase physical activity in substantial numbers of young children.

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Abbreviations

PA	physical activity
MVPA	moderate to vigorous physical activity
FHCC	Family Home Child Care

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Significance

Child care settings can affect children's physical activity (PA), a known determinant of children's health and well-being. Current recommendations for child care settings in the U.S. range from 90 to 120 minutes of PA, and 60 to 90 minutes of outdoor play (OP) daily. Certain policies, practices and environments may be associated with increased likelihood of meeting recommended best practice standards for PA and OP. This study explores the current status of PA and OP in Washington State child care settings, and explores the relationships between specific policies and practices and meeting best practice recommendations for child care.

Table 1

Summary of Outdoor Time and Physical Activity Recommendations for Child Care

	CFOC (<i>Caring for our children: National health and safety performance standards; Guidelines for early care and education programs.</i> , 2011)	NAP SACC (D. Ward et al., 2014)	NASPE ("Active Start: A Statement of Physical Activity Guidelines for Children from Birth to Age 5," 2009)	<i>Let's Move! Child Care</i> ("Let's Move! Child Care guidelines," 2015)	WA State licensing requirements ("DEL Child Care Licensing Requirements," 2015)	Criteria in present study
Outdoor Time (Daily)	2–3 occasions, for 60–90 minutes	At least 3 occasions, for a minimum of 90 total minutes	None specified	None specified	<i>For centers:</i> activity schedule must provide daily morning and afternoon scheduled outdoor time. <i>For homes:</i> must provide outdoor activities at least 30 minutes per day.	<i>Minimum:</i> 60 minutes <i>Best-practice:</i> 90 minutes
Physical Activity	90–120 minutes (Daily)	At least 120 minutes	At least 120 minutes (adult led + unstructured PA)	At least 120 minutes	<i>For centers:</i> must include one daily "active play" activity. <i>For homes:</i> must have an outdoor play area appropriate for active play.	<i>Minimum:</i> 90 minutes <i>Best-practice:</i> 120 minutes

Table 2

Program and Respondent Characteristics

	Centers (n = 692)		Homes (n = 1,281)
	n (%)		n (%)
Program characteristics			
Type of programming			
Full-day	243 (35.1%)		588 (45.9)
Half-day	21 (3.0%)		18 (1.4%)
Both full-day & half-day	428 (61.9%)		673 (52.5%)
Profit status			
Head Start	13 (1.9%)		n/a
Non-profit	308 (44.5%)		n/a
For-profit	343 (49.6%)		n/a
Other	28 (4.1%)		n/a
Region			
Central	58 (8.4%)		224 (18.4%)
Eastern	99 (14.3%)		155 (12.8%)
Northwest	318 (46.0%)		496 (40.8%)
Southwest	217 (31.4%)		340 (28.0%)
Early Achievers enrollment ^a			
Currently Enrolled	426 (61.6%)		446 (34.8%)
Not enrolled	248 (35.8%)		729 (56.9%)
Unsure	18 (2.6%)		97 (7.6%)
Number of staff	Average	15.0	2.0
	Range	0–150	0–18
Number of children 0–2 years	Average	14.7	2.0
	Range	0–100	0–12
Number of children 2–5 years	Average	38.9	4.9
	Range	0–180	0–84
Number of children 6+ years	Average	15.0	2.20
	Range	0–557	0–16
Respondent characteristics			
Race			
Caucasian or white	582 (84.1%)		874 (70.1%)
African American or black	22 (3.2%)		67 (5.4%)
Asian	16 (2.3%)		50 (4.0%)
American Indian/Alaskan native	6 (0.9%)		9 (0.7%)
Native Hawaiian/Pacific islander	5 (0.7%)		6 (0.5%)
Other/more than one	61 (8.8%)		241 (19.4%)

	Centers (n = 692)		Homes (n = 1,281)
	n (%)		n (%)
Ethnicity			
Non-Hispanic or Latino	621 (89.7%)		988 (77.1%)
Hispanic or Latino	67 (9.7%)		271 (21.2%)
No response	4 (0.6%)		22 (1.7%)
First language			
English	643 (92.9%)		934 (72.9%)
Spanish	22 (3.2%)		212 (16.6%)
Other	27 (4.5%)		135 (10.5%)
Highest level of education			
High school or less	11 (1.6%)		389 (30.4%)
Some college or associate's degree	317 (45.8%)		652 (50.9%)
College graduate or some graduate-level	246 (35.6%)		170 (13.3%)
Graduate degree or higher	118 (17.1%)		58 (4.5%)
Role			
Owner	160 (23.1%)		21 (1.6%)
Director	517 (74.7%)		2 (0.2%)
Provider	4 (0.6%)		1,248 (97.6%)
Other (includes volunteers and assistants)	11 (1.6%)		38 (0.6%)
Years as a child care provider	Average	17.8	16.5
	Range	0–57	0–50

^aEarly Achievers is a child care quality rating and improvement system in Washington State ("Early Achievers, Washington's Quality Rating and Improvement System," 2010).

Table 3

Survey Responses Regarding Physical Activity Environment, Practices and Challenges.

	Centers	Homes
	n (%)	n (%)
Time provided each day for indoor and outdoor physical activity¹, ages 3–5		
< 60 minutes	104 (15.0%)	220 (17.2%)
60–89 minutes	335 (48.4%)	553 (43.2%)
90–119 minutes	167 (24.1%)	239 (18.7%)
120 minutes or more ^a	84 (12.1%)	258 (20.1%)
Outdoor time provided per day, ages 2–5		
< 60 minutes	102 (14.7%)	303 (23.7%)
60–74 minutes	350 (50.6%)	573 (44.7%)
75–89 minutes	87 (12.6%)	110 (8.6%)
90 minutes or more ^a	151 (21.8%)	278 (21.7%)
Childrens' usual activity in rainy, cold, snowy, hot weather, ages 2–5		
Stay inside for quiet time	0 (0%)	1 (0.1%)
Stay inside for moderately active play such as playing with toys, floor games, or stretching	63 (9.1%)	206 (16.1%)
Stay inside for vigorous play such as dancing, jumping, hopping, or running	192 (27.8%)	327 (25.5%)
Go outside anyway with proper clothing and protection from the weather	434 (62.7%)	718 (56.1%)
Optional nap time/rest time, ages 2–5		
Nap time is optional- children who do not feel like napping or resting quietly are offered playtime which could be physical activity indoors or outdoors	53 (7.7%)	42 (3.3%)
Nap time is optional- children who do not feel like napping or resting quietly are offered quiet time activities (such as reading books, coloring, puzzles, or quiet play with a small toy)	493 (71.2%)	790 (61.7%)
Required- no alternate activities are scheduled during this time	145 (21.0%)	446 (34.8%)
Description of indoor space for active play		
Not available	9 (1.3%)	3 (0.2%)
Available for very limited movement (like walking)	66 (9.5%)	80 (6.3%)
Available for some active play (like jumping, dancing, rolling, skipping, etc.)	454 (65.6%)	980 (76.5%)
Available for all activities, including running ^a	163 (23.6%)	215 (16.8%)
Types of outdoor activities		
Free play that is child-led and depends on what activities and games children decide to do	632 (91.3%)	1,078 (84.2%)
Active adult-led play, such as adult-led games and activities that get the children physically active	536 (77.5%)	879 (68.62%)
Planned lessons and activities, such as circle time, arts and crafts, and reading books	325 (47.0%)	495 (38.6%)
Seasonal outdoor activities, such as gardening, collecting fallen leaves, water play, and playing in the snow	550 (79.5%)	971 (75.8%)
Walking trips and activities that let children explore the outdoors beyond regular play space, including neighborhood tours, nature hikes, and scavenger hunts	439 (63.4%)	702 (54.8%)
Outdoor field trips to places around the community where children can enjoy outdoor activities including local parks, farms, community gardens, local botanical gardens, or nature or wildlife centers	347 (50.1%)	473 (36.9%)
Amount of portable play equipment³, indoors and outdoors		
Very limited- children must always wait to use items	26 (3.8%)	14 (1.1%)

	Centers	Homes
	n (%)	n (%)
Limited- children often wait to use items	78 (11.3%)	46 (3.6%)
Adequate- children sometimes wait to use items	432 (62.4%)	590 (46.1%)
We have plenty- children never wait to use items ^a	154 (22.3%)	628 (49.0%)
Staff role during physical activity play time		
Supervise only (rarely or never play with children)	12 (1.7%)	0 (0%)
Supervise and verbally encourage physical activity	42 (6.1%)	55 (4.3%)
Supervise, verbally encourage physical activity, and sometimes join in	406 (48.7%)	546 (42.6%)
Supervise, verbally encourage physical activity, and often join in ^a	230 (33.2%)	674 (52.6%)
Incorporation of physical activity into learning activities and transitions⁴		
Each time they see an opportunity ^a	219 (31.7%)	448 (35.0%)
Often	303 (43.8%)	517 (40.4%)
Sometimes	159 (23.0%)	290 (22.6%)
Rarely or never	11 (1.6%)	21 (1.6%)
Major challenges to providing more physical activity to children at child care		
None- no major challenges	286 (41.6%)	727 (58.0%)
Not enough outdoor play space	57 (8.3%)	26 (2.1%)
Not enough indoor play space	172 (25.0%)	120 (9.6%)
Limited play equipment	106 (15.4%)	97 (7.7%)
No outdoor covered space (to provide shade or shelter)	197 (28.7%)	230 (18.3%)
Unsafe neighborhood	8 (1.2%)	10 (0.8%)
Air pollution or land pollution (smog, pesticides or other chemicals)	2 (0.3%)	8 (0.7%)
Weather is too hot, cold, or wet to go outside	72 (10.5%)	199 (15.9%)
Children lack appropriate or adequate clothing and shoes	100 (14.6%)	197 (15.7%)
Not enough time	24 (3.5%)	20 (1.6%)
Children's interest or skill	10 (1.5%)	48 (3.8%)
Parents' interest or preference	22 (3.2%)	49 (3.9%)
Staff knowledge about physical activity	39 (5.7%)	0 (0%)
Staff personal health	12 (1.8%)	0 (0%)
Lack of training on physical activity	59 (8.6%)	7 (0.6%)
Lack of policy on physical activity	17 (2.5%)	4 (0.3%)
Liability concerns	6 (0.9%)	47 (3.8%)

^a indicates NAP SACC-defined best-practice standard(D. Ward et al., 2014)

¹Physical Activity is any movement that gets children “breathless” or breathing deeper and faster than during typical activities. Examples include walking, running, climbing, jumping and dancing.

²Activities that are adult-led might include children's games such as Simon Says, Mother May I, Get the Wiggles Out, dancing, stretching or a simple walk through the neighborhood.

³Portable play equipment might include jump ropes, wagons, big dump trucks, hula hoops, balls, mats, tricycles and other riding toys, etc.

⁴This might include movement during circle time or story time, Simon Says, or other movement games while children wait in line

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Table 4

Odds Ratios of Meeting Best-Practice Standards for Physical Activity (PA) and Outdoor time

	Centers		Homes	
<i>Center Characteristics</i>	OR of providing PA > 120 min/day	OR of providing >90 min/day outdoor time	OR of providing PA > 120 min/day	OR of providing >90 min/day outdoor time
Adult-led physical activity provided				
<30 minutes ^a	1	1	1	1
30–44 minutes	1.48 (0.81 – 2.72)	1.24 (0.80 – 1.90)	1.54 (0.96 – 2.47)	1.33 (0.89 – 1.97)
45–59 minutes	3.71 ** (1.78 – 7.72)	1.59 (0.85 – 2.97)	4.24 ** (2.51 – 7.15)	1.73 * (1.06 – 2.82)
60 minutes or more	5.56 ** (2.54 – 12.24)	3.50 ** (1.80 – 6.82)	7.48 ** (4.59 – 12.18)	3.58 ** (2.32 – 5.53)
Children's activity in rainy, cold, snowy, hot weather				
Stay inside for quiet time ^a	1	1	1	1
Stay inside for moderately active time ^a	1	1	1	1
Stay inside for vigorous play	1.45 (0.40 – 5.33)	2.40 (0.89 – 6.46)	1.80 * (1.08 – 2.99)	0.97 (0.59 – 1.59)
Go outside anyway with proper clothing	4.13 * (1.26 – 13.60)	3.88 * (1.51 – 9.97)	2.04 * (1.28 – 3.24)	1.81 * (1.18 – 2.79)
Nap time practices				
Optional- children who do not feel like napping are offered playtime which could be physically active	1.73 (0.78 – 3.85)	0.83 (0.39 – 1.76)	1.24 (0.58 – 2.64)	1.86 (0.93 – 3.71)
Optional- children who do not feel like napping are offered quiet time activities	0.67 (0.39 – 1.16)	0.79 (0.51 – 1.21)	1.18 (0.87 – 1.60)	1.25 (0.93 – 1.68)
Required- no alternate activities ^a	1	1	1	1
Description of indoor space for active play				
Not available ^a	1	1	1	1
Available for limited movement ^a	1	1	1	1
Available for some active play	1.83 (0.76 – 4.41)	0.76 (0.43 – 1.34)	1.38 (0.73 – 2.60)	0.91 (0.53 – 1.57)
Available for all activities	1.61 (0.61 – 4.22)	0.63 (0.39 – 1.76)	2.32 * (1.17 – 4.61)	0.96 (0.52 – 1.77)
Amount of portable play equipment				
Very limited ^a	1	1	1	1
Limited ^a	1	1	1	1
Adequate	2.33 (0.97 – 5.58)	2.34 * (1.23 – 4.45)	3.54 * (1.25 – 9.99)	3.21 * (1.13 – 9.08)
Have plenty	3.28 * (1.29 – 8.31)	2.70 * (1.33 – 5.48)	4.22 * (1.50 – 11.88)	4.91 * (1.74 – 13.82)
Staff role during physically active play time				
Supervise only ^a	1	1	1	1
Supervise and verbally encourage physical activity ^a	1	1	1	1
Supervise, verbally encourage and sometimes join in	0.97 (0.39 – 2.41)	2.43 * (1.00 – 5.88)	1.99 (0.77 – 5.14)	2.10 (0.81 – 5.42)

	Centers		Homes	
<i>Center Characteristics</i>	OR of providing PA > 120 min/day	OR of providing >90 min/day outdoor time	OR of providing PA > 120 min/day	OR of providing >90 min/day outdoor time
Supervise, verbally encourage, and often join in	1.48 (0.59 – 3.76)	2.84 * (1.15 – 7.03)	3.50 * (1.37 – 8.97)	4.12 * (1.60 – 10.59)
Incorporation of physical activity into learning activities and transitions				
Each time they see an opportunity	2.01 (0.25 – 16.28)	2.21 (0.27 – 18.09)	1.28 (0.42 – 3.93)	1.33 (0.43 – 4.09)
Often	1.41 (0.17 – 11.35)	2.87 (0.36 – 22.99)	1.03 (0.34 – 3.15)	1.23 (0.40 – 3.77)
Sometimes	1.05 (0.12 – 8.83)	2.21 (0.42 – 27.33)	0.70 (0.22 – 2.21)	0.71 (0.22 – 2.24)
Rarely or never ^a	1	1	1	1
Major challenges to providing more physical activity				
None ^a	1	1	1	1
Space related restrictions (such as not enough indoor or outdoor play space, no covered space, or limited play equipment) ^b	0.96 (0.61 – 1.52)	0.78 (0.54 – 1.13)	0.51 ** (0.36 – 0.72)	0.64 * (0.47 – 0.89)
Staff related restrictions (such as not enough time, staff knowledge, staff personal health, lack of training or policy, or liability concerns)	0.88 (0.45 – 1.72)	1.27 (0.77 – 2.09)	0.46 (0.23 – 0.94)	0.56 (0.29 – 1.08)
Parent or child related restrictions (such as children's interest or skill, or parents' interest or preference, or children lacking appropriate or adequate clothing or shoes)	1.48 (0.85 – 2.59)	0.78 (0.47 – 1.30)	0.84 (0.58 – 1.22)	0.70 (0.49 – 1.01)
Environmental restrictions (such as unsafe neighborhood, air pollution, land pollution, weather)	0.89 (0.43 – 1.85)	0.65 (0.35 – 1.22)	0.94 (0.64 – 1.37)	0.37 (0.58 – 1.22)
Early Achievers enrollment				
Currently enrolled	1.25 (0.76 – 2.04)	1.15 (0.79 – 1.22)	0.95 (0.70 – 1.28)	1.06 (0.79 – 1.43)
Not enrolled ^a	1	1	1	1
Training on physical activity				
No training ^a	1	1	1	1
Training on physical activity outdoors	1.61 (0.99 – 2.60)	1.42 (0.97 – 2.06)	1.55 * (1.14 – 2.69)	1.27 (0.95 – 1.69)
Training on physical activity communication	1.51 (0.95 – 2.39)	1.00 (0.69 – 1.45)	1.85 ** (1.39 – 2.46)	1.24 (0.94 – 1.63)
Training on physical activity policies	1.56 (0.99 – 2.47)	1.18 (0.82 – 1.70)	1.65 * (1.24 – 2.19)	1.13 (0.86 – 1.48)
Outdoor > 90				
Yes ^b	15.89 ** (9.27 – 27.22)	N/A	5.19 ** (3.82 – 7.05)	N/A
Outdoor > 60				
Yes	7.90 * (1.91 – 32.71)	N/A	3.01 ** (1.97 – 4.60)	N/A

^aReference level.

^bSignificant difference found between homes and centers.

Boldface indicates statistical significance.

*
 $p < 0.05$,
**
 $p < 0.001$

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