

Primary Caregiver Perceptions of Preschool Activities: Understanding the Value of Outdoor Play

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Abstract

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Purpose.

It is recommended that preschool-aged children have a total of 60 minutes of outdoor play per 8-hour day in center-based care or preschool. However, most children in these settings only experience half that amount. Teachers describe primary caregivers' concerns as barriers to increasing outdoor playtime. In this study, primary caregivers' perceptions of outdoor playtime in preschool and childcare were explored to better understand how caregivers view outdoor play in center-based settings.

Methods.

Surveys about outdoor playtime and other components of children's programs were administered to 78 primary caregivers of preschool-aged children currently enrolled in a center-based preschool or childcare program. To help contextualize the survey results, a key informant telephone interview was conducted with a typical survey respondent.

Results.

On average, primary caregivers reported wanting their child to spend 96.5 minutes playing outside during a single full day of preschool or childcare, significantly more outdoor playtime than the recommended 60 minutes ($p < 0.0001$). However, 60% of primary caregivers reported that they did not know how much time their child actually spent playing outside and 55% reported that they did not know their child's school policy for outdoor play. Only 36% of primary caregivers agreed or strongly agreed with the statement, "I think story time, ABCs, numbers and science are more important for my child than going outside to play" and 64.1% of primary caregivers would allow their child to play outside in wet weather. The key informant provided three themes to outdoor play: 1) weather, 2) staff involvement, and 3) non-academic time.

Conclusions.

Primary caregivers support outside play for their child during preschool and childcare. Primary caregivers' lack of knowledge regarding school policies for outdoor play may create barriers to increasing outdoor playtime for preschool-aged children in center-based settings. Few primary caregivers agree that perceived barriers of weather and other learning activities are an issue. Further qualitative research may inform center-based preschool and childcare programs approach to increasing outdoor play.

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Introduction

Physical Activity in Preschool and Childcare

Physical activity for children is beneficial for a variety of health reasons, including obesity and chronic disease prevention (Flynn et al., 2006). Outdoor playtime is one of the strongest and most consistent correlates of physical activity in children (Dolinsky, Brouwer, Ostbye, Evenson, & Siega-Riz, 2011; Sallis, Prochaska, & Taylor, 2000). Increasing outdoor playtime among preschool-aged children is particularly important as young children play more vigorously when outdoors compared to indoors (Tandon, Saelens, Zhou, Kerr, & Christakis, 2013). The American Academy of Pediatrics (AAP) recommends that pediatricians encourage parents to provide outside playtime for their children as much as possible (AAP, 2006). Despite this recommendation, nearly half of all preschool-aged children do not have at least one opportunity for parent-supervised outdoor play per day (Tandon, Saelens, & Christakis, 2012). Given that in 2011, 6.7 million children under the age of five participated in center-based childcare or preschool, with an average of 33 hours per week in attendance, the center-based setting provides an opportunity to increase both outdoor playtime and physical activity for preschool-aged children (Laughlin, 2013).

According to the third edition of *Caring for Our Children: National Health and Safety Performance Standards; Guidelines for Early Care and Education Programs*, children attending preschool or childcare should have multiple opportunities for outdoor play each day (AAP, 2012). The guidelines recommend that preschools and childcare centers have policies for outdoor play that specify a minimum of 60 minutes of outdoor play per day (AAP, 2012). The recommendations include guidelines for appropriate weather for outdoor play including: 1) temperatures that pose a significant health risk are wind chills at or below minus 15⁰F and heat

index at or above 90⁰F; 2) children should have sun-protective clothing and use sunscreen with UVB-ray and UVA-ray protection of SPF 15 or higher when sunny; and 3) children should wear a hat, coat, and gloves/mittens in cold weather. Such recommendations have led to studies of preschool-aged children's outdoor play. One study reported that children who enroll in full-day preschool programs spend less time actively playing compared to children who are enrolled in half-day preschool programs, and emphasized the need to focus on preschool and childcare settings to increase active outdoor play (O'Dwyer et al., 2013). Another study of preschool-based active playtime reported that children in Head Start spent only an average of 36 minutes per day playing outdoors (Marino, Fletcher, Whitaker, & Anderson, 2012).

Potential Cognitive Benefits of Outdoor Active Play in Preschool

Numerous studies have found that physical activity in school-aged children is associated with improved cognition and academic performance (Diamond & Lee, 2011; Koch & Hasbrouck, 2013; Hillman, Erickson, & Kramer, 2008). A recent report by the Institute of Medicine calls for increased physical activity in schools to promote "brain health" and academic performance (IOM, 2013). Executive function, for example, is an aspect of cognition which is central to problem solving, reasoning, and planning and develops rapidly through the preschool-aged years into elementary school (Tomprowski, Lambourne, & Okumura, 2011). Studies have linked physical activity to better executive function in children aged 7 to 11 (Diamond and Lee, 2011; Davis et. al, 2011).

In order to understand how increased physical activity may contribute to early childhood development and kindergarten readiness, research with younger children is needed. Promoting physical activity during early childhood is now being explored as an important component of

academic functioning in addition to its role in obesity and chronic disease prevention. A qualitative study of preschool teachers explored how they perceive active movement to influence learning in early childhood education (Gehris, Gooze, & Whitaker, 2014). Results showed that teachers recognize preschool-aged children's need to move and respond to the need by using movement to teach children academic concepts and spatial awareness. Preschool teachers expressed wanting more training in these areas. In addition, teachers cited confidence and social skill building, promotion of teacher-child relationship, and learning through engaging children's senses as benefits of physical activity. While parents may be aware of the cognitive benefits of early childhood literacy, they may not be as aware of the possible cognitive benefits of physical activity and active play (Copeland, Sherman, Kendeigh, Saelens, & Kalkwarf, 2009). This lack of understanding of the potential benefits of physical activity for cognitive development and academic success may limit parental support for outdoor active play and/or deprioritize it as a learning activity in preschool.

Barriers to Active Play

Programs designed to increase the amount of physical activity during the preschool day have been developed and evaluated (Bundy et al., 2011; O'Dwyer et. al, 2013; Bohn-Goldbaum et. al, 2013; Nicaise, Kahan, Reuben, & Sallis, 2012; Hannon & Brown, 2008). Several barriers to increasing physical activity in preschool and childcare centers have been identified by teachers (Copeland, Sherman, Kendeigh, Kalkwarf, & Saelens, 2012). Reported barriers include parental issues pertaining to inappropriate clothing for playing outdoors, parental preference for children to spend time inside learning, and parental disapproval of young children engaging in active play during the school day (Copeland et. al., 2009). Possible reasons for unsuitable clothing included

parental forgetfulness, rushed morning routines, limited income, and lack of understanding of the importance of outdoor play. Parents who forget in a morning rush or cannot afford to dress their child for warm or wet weather could inhibit an entire classroom's ability to go outside. One or two children in a classroom without appropriate clothing prevents the entire class from going outside due to inability to maintain staff-to-student ratios required for supervising simultaneous indoor and outdoor play groups. Parents who do not value outdoor play may not prioritize dressing their child appropriately, preventing outdoor play for the classroom. The Copeland (2009) study concluded that parents may need to be better educated regarding the benefits of active play for their child's development to encourage them to dress their child suitably and support outdoor active playtime.

The positive influence of parental support for outdoor play was shown in a qualitative study among Hispanic parents of preschoolers which found that parental engagement in their child's activities increased physical activity (O'Connor et al., 2013). This study also found that parent behaviors such as modeling physical activity and feeding the child well, increased the child's physical activity. A study of children ages 7-8 and 10-11 reported that both children and parents tended to consider any school related activity and food to be healthy simply because school is perceived to be a "healthy place". This highlights the importance of physical activity as a regular part of the school day (Hesketh et al., 2005). The combined effect of parent influence on their child's activity levels and parents' perceptions of school as a healthful environment supports the need to engage parents through communication and outreach efforts to address concerns about outdoor playtime at school.

Purpose of Study

The purpose of this study was to evaluate primary caregivers' perceptions of the role of outdoor play in their child's preschool or childcare experience. The study sought to describe how primary caregivers view outdoor play in relation to other preschool activities, such as learning "ABCs", and to identify barriers to outdoor play. Understanding primary caregiver views and knowledge of outside play in preschool can help guide researchers and public health professionals in the development of effective programs and interventions.

Research Questions

Through a descriptive survey, this study investigated the following questions:

1. How do primary caregivers rate the importance of daily preschool activities including outdoor active playtime?
2. How do primary caregivers rate the importance of preschool activities for their child's preparation for kindergarten?
3. How much time do primary caregivers expect their children to play outside during their time at preschool?
4. What are primary caregivers' perceptions of barriers to outdoor play at preschool?
5. How aware are primary caregivers of preschool outdoor active play policies?

Methods

Design

This was a descriptive exploratory study that used a convenience sample to gather information regarding primary caregivers' views of their child's activities while attending

preschool or childcare. Research questions were developed based on a review of published literature. The study included a cross-sectional survey with a follow-up key informant interview. This study was approved by the University of Washington Institutional Review Board.

Participants and Setting

The study participants consisted of a convenience sample of primary caregivers with children ages three to five years old enrolled in a preschool classroom or childcare center. The study was conducted in licensed preschools and childcare centers in the greater Seattle area. Of the 10 programs included, five were from a local conglomerate of childcare centers and five from independent programs. The local conglomerate of programs is located in communities that have a broad range of income levels and races/ethnicities. For example, the median income of a community southeast of Seattle, WA is \$87,379 while the median income of a community south of Seattle, WA is \$52,278. The racial/ethnic makeup of the two cities varies as well: southeast of Seattle the community is 85.8% white, 2.1% Black or African American, 5.7% Hispanic, 4.5% Asian compared to the community south of Seattle which is 63.5% white, 5.9% Black or African American, 20.7% Hispanic and 9.9% Asian (Census Bureau, 2010). Each center has a preschool with two to three classrooms of about 20-30 students per classroom.

In addition to the local conglomerate of program, surveys were also administered at several independent preschool and childcare centers in southwest Seattle. The preschools surveyed are in areas that have similar demographic characteristics to south of Seattle with the exception of one preschool. One sample came from an area southwest of Seattle where the racial/ethnic makeup is: 47% white only, 9% Black or African American, 22.9% Asian only, 21.5% Hispanic or Latino and the median income \$43,263 (Census Bureau, 2010).

Participant Inclusion/Exclusion Criteria

Primary caregivers under 18 years of age were excluded, as well as caregivers who did not self-identify as the primary caregiver. If a primary caregiver had more than one preschool-aged child enrolled in a preschool program, only one survey was completed. Non-English speaking primary caregivers were excluded from the study which excluded approximately 1 to 2 primary caregivers at each study site.

Data Collection

Study participants were recruited through one of three methods: 1) In-person communication between researcher and primary caregiver; 2) Preschool/childcare center distribution of survey; 3) Electronic flyer distribution.

The method of recruitment was determined by the preference of the preschool or childcare center director. Most center directors elected to have the researcher on site, while directors at two centers chose to distribute and collect surveys without the researcher present. At centers where the researcher was not present, the completed surveys were mailed to the researcher using a pre-stamped and pre-addressed envelope provided by the researcher. At one center, the survey was distributed to primary caregivers via email with a recruitment flyer and link to the web-based version of the survey.

For centers opting to have the researcher present, potential study participants were approached by the researcher during child drop-off and pick-up times. Primary caregivers who expressed an interest in completing the survey but did not have the time to do so were given two options to complete the survey on their own time: 1) A flyer with study information and a link to

an online version of the survey, and 2) A paper survey with a pre-stamped/pre-addressed return envelope.

Survey Instrument

A copy of the full survey is provided in Appendix A. The survey was accompanied by an information letter which described the study and provided a check box allowing primary caregivers to express interest in a follow-up telephone interview, and provide their contact information.

The survey instrument included:

- Child and primary caregiver characteristics: full or half-day preschool enrollment, age of primary caregiver, primary caregiver's relationship to child, child's age, child's sex, primary caregiver's ethnic/racial background, primary caregiver's highest level of education, number of children currently living in primary caregiver's home and the ages of each child.
- Primary caregiver's perspective of school activities: primary caregiver's perceptions of the importance of outside play for the child's preschool day, open-ended questions about caregiver knowledge of center active play policies, and the value of outside playtime relative to other preschool activities.
- Primary caregiver's perception of potential barriers to outdoor play at preschool.
- Open-ended questions about primary caregiver and teacher discussions of outdoor playtime.
- Primary caregiver activity levels: one question about the amount of time primary caregivers are engaged in physical activity each week.

- Child activity levels: two questions in which primary caregivers reported the amount of time the child is physically active while at home.

To contextualize the survey results, a key informant telephone interview was conducted with a typical primary caregiver over the phone. The participant volunteered to complete the interview after completing the survey. The interview used a semi-structured format, was audio recorded and transcribed for analysis.

Data Analysis

Frequencies, means and standard deviations of responses were calculated for all survey questions and demographic characteristics. A one-sided, one-sample t-test was used to compare the mean of primary caregivers' reported ideal amount of outdoor play with the recommended 60 minutes of outdoor play.

Responses to open ended questions included in the survey were analyzed using a qualitative content analysis approach. Using keywords, responses were coded and counted. These results were used to contextualize the survey responses. An *a priori* list of keywords derived from review of prior literature was used for coding.

The key informant interview was analyzed using a thematic analysis approach to identify themes that complemented and contextualized the survey responses. A combination of *a priori* codes and inductive coding was used to establish themes.

Results

Participant Characteristics

The survey was completed by 78 primary caregivers. The response rate among potential subjects approached directly by the researcher was 85.7% with 13 primary caregivers declining to participate. The characteristics of the study participants are shown in Table 1. The sample was comprised of 62 mothers, nine fathers, two grandmothers, one grandfather, one foster father and one sister. Primary caregiver age ranged from 18 to 54 with a median age of 33 years. Non-Hispanic whites represented the largest ethnic group (46.2%) followed by African-American (19.2%). The majority of primary caregivers had completed some college (32.1%) or a college degree (25.6%).

Table 2 describes the characteristics of the children of the participating primary caregivers. Children's ages ranged from 3.0 to 5.9 years of age. Children were approximately evenly distributed between male (46.1%) and female (51.3%). The majority of primary caregivers reported that their children were enrolled in full day programs (71.8%), defined as more than four hours per day spent in a center-based setting.

Survey Responses

Importance of Activities

Figure 1 and Table 3 show responses to the survey questions regarding the importance of different preschool activities and their relationship to kindergarten readiness. When activities for a general school day were rated on a scale of 1 to 5, 1 being the least important and 5 being the most important, the highest average score was "learning ABCs and numbers" (4.77). Outside playtime was ranked 5th (4.21). When primary caregivers were asked to rate the same activities

relative to importance for kindergarten readiness, “learning ABCs and numbers” had the highest mean score (4.95); outside playtime was ranked 4th (4.19).

Reported Ideal Amount of Outdoor Playtime and Actual Outdoor Amount of Playtime

The mean amount of time in minutes that primary caregivers reported wanting their child to spend in outdoor playtime during a full day of preschool or childcare was 96.5 (95% CI: 86.2-106.7). Compared to the recommendation of 60 minutes of daily outdoor playtime (AAP, 2012), primary caregivers wanted significantly more outdoor playtime in center-based settings ($p < 0.0001$). The majority of primary caregivers (60.3%) reported wanting their child to spend more than 60 minutes playing outside compared to 37.2% of primary caregivers who reported wanting their child to spend 60 minutes or less playing outside. Figure 2 displays the distribution of primary caregivers’ reported times for the ideal amount of outdoor playtime for a full day of preschool or childcare.

When primary caregivers were asked to report how much time their child currently spends playing outside at preschool or childcare, 60% responded “don’t know”. The average time reported by primary caregivers who reported that they did know was 59.5 (SD: 30.69) minutes per day.

Primary Caregiver Reported Perceptions and Barriers of Outdoor Playtime

In response to the statement, “I think outside playtime is an important learning activity at school”, 87% of primary caregivers agreed or strongly agreed. In response to the statement, “Active outdoor playtime helps my child get ready for kindergarten”, 82% of primary caregivers agreed or strongly agreed. In response to the statement, “I think story time, ABCs, numbers and

science are more important for my child than going outside to play”, 36% of primary caregivers agreed or strongly agreed compared to 32% who disagreed or strongly disagreed and 32% of primary caregivers who neither agreed nor disagreed.

In response to statements about weather as a potential barrier to outdoor play, most primary caregivers disagreed or strongly disagreed with the statement that their child should not play outside in the rain (64.1%), in the snow (69.23%), or in cold temperatures (74.36%), while only 19.2% of the primary caregivers agreed or strongly agreed that their child should not play outside in the rain, in the snow (12.8%) or in cold temperatures (7.7%).

Other potential barriers that primary caregivers were asked to rate included child’s illness, being too rushed in the morning to prepare weather-appropriate clothing, and being worried that their child might be hurt while playing. Most primary caregivers reported agreement with not allowing their child to play outside when sick (53.9%) although nearly one-third of primary caregivers reported they would let their child play outside when sick (26.9%). Relatively few primary caregivers reported that they feel too rushed in the morning to get their child’s outdoor clothes ready (6.4%) or were worried about their child getting hurt playing outside (9.0%).

Primary Caregiver Knowledge of Preschool Outdoor Play Policy

Table 4 displays responses to the questions regarding preschool or childcare center policies for outdoor play. Of the 77 primary caregivers who responded to the question: “Does your child’s school have a policy about outdoor active playtime?” 43 (55%) responded “yes” compared to 41% who responded “not sure”.

Primary caregivers who responded that they knew their child's school had a policy then reported on their level of knowledge of the policy in the following areas: amount of time spent outside, weather requirements, clothing requirements. Among the 43 primary caregivers who reported that they knew their child's school had an outdoor play policy, 32 (78.05%) reported "yes" to knowing the weather policy, 28 (66.76%) reported "yes" to knowing the amount of time spent outside, and 26 (63.41%) reported "yes" to knowing the clothing policy.

Primary caregivers were given an open-ended question to describe what they knew about the outdoor policy. Table 4 displays sample responses. Of the 23 primary caregivers who responded to the open-ended question about time spent outside, 10 (35.7%) reported an amount of time in minutes of which 3 reported the 60 minute policy (range: 15 -60 minutes). For six of the 10 responses, the amount of time reported for the school policy was the same amount of time that the primary caregivers said their child actually spends outside. Of the 10 respondents, only seven primary caregivers reported knowing that the center includes outdoor play in the daily schedule. Primary caregivers reported that the center schedules included one, two, or three times of outdoor play per day.

Of the 29 primary caregivers who responded to the open-ended question about the center's weather policy, 22 (76%) reported knowing that outdoor play is dependent on weather conditions. Of these, 12 cited some form of rain as part of the school policy for outdoor play, eight reported cold temperatures, two reported hot temperatures, and two reported snow as part of the school policy.

Of the 22 primary caregivers who responded to the open-ended questions about the clothing policy, 11 (50%) responses reported that some form of weather appropriate clothing is required by the center. Of the 22 responses, nine reported that the center requires primary

caregivers to provide specific clothing items such as hats, gloves, jackets, and waterproof shoes and 7 reported that primary caregivers are to provide extra clothing for the child for either layering or changing if the child gets dirty or wet.

Communication between primary caregivers and staff

When asked about communication, only 16 (21%) of all primary caregivers reported having started a conversation with a center staff member or teacher about outdoor play. Of these, five cited weather as the reason for talking with staff. Weather topics included asking teachers not to take children outside in the rain, asking teachers to take children outside even when raining, talking with teachers about decisions to go outside in the current weather, and reminding staff of sunscreen and proper clothing use.

Among all primary caregivers, 18 (23.4%) reported that a center staff member or teacher had talked with them about outdoor play. Primary caregivers most frequently reported being reminded by staff to bring weather appropriate clothing or talking about the outdoor activities. Table 5 displays sample open-ended responses.

Key Informant Interview

The key informant participant was a 27 year old Hispanic/Latino mother who had completed some college and had a four year old female child enrolled in a full day program. The participant's demographic characteristics were typical relative demographic characteristics of the overall sample as were her survey responses. The interview elaborated on the mother's survey responses to provide complementary information. Three overarching themes emerged from this

primary caregiver's perspective as important for outdoor play: weather, staff involvement, and non-academic time.

Weather

In her survey responses, the mother said she would to not let her child play outside in rain, cold temperatures and snow. However, when asked about weather during the interview, the mother qualified her responses about the degree to which weather should prevent outdoor play. She stated that mist, light drizzle and a wet playground were considered fine for her child to play outdoors while heavy rain or down pouring rain should keep her child inside. She also stated that any level of snow or snowfall or temperatures below 40 degrees should prevent outdoor play. The mother also reported that her child's outfit was always weather-dependent and that she makes sure her child has appropriate clothing including closed shoes for wet days. *"I'll keep an eye on the temperature and the weather for the day and so depending on the weather I'll either send a heavy jacket or a sweatshirt."*

Staff Involvement

On the survey, the mother reported that she did not know how much time her child spends outside during the day at the center or about the center's outdoor play policy. She reported on the survey no conversation between herself and a staff member about playing outside. During the interview the mother responded to several related questions and sub-themes emerged related to the primary caregiver's perception of staff involvement. The first sub-theme related to the importance of play time without teacher influence. The mother viewed outdoor time as an opportunity for the child to interact with other children and to play without heavy supervision or instruction. She expressed concerns about her child being hurt while playing on outside equipment, but she felt comfortable knowing that supervision is available but was not too

intrusive. She stated the belief that her child appeared more confident and could do more when playing outside on larger playground equipment when there was less teacher or primary caregiver instruction, “...in general the supervision is perfect I think, it’s not too many. She feels confident to do stuff on her own.” The second sub-theme was related to communication. When asked about conversations with staff, the mother did not express an interest in learning more about the amount of time her child spends playing outdoors or the outdoor play time activities. She explicitly stated being most interested in, “how she’s doing in her preschool activities...I enjoy seeing how much she learned inside the classroom.”

Non-Academic Time

Throughout the interview the mother made reference to outdoor play time as important for non-academic reasons, “I prefer she get outside and get fresh air...give her mind a little bit of a break.” When asked if she thought outdoor play takes away from learning during indoor activities, the mother explained that outside play is important for different types of learning, such as communication and sharing, but inside learning, such as coloring, alphabet and numbers, is more important for her child.

Discussion

This study provides information about primary caregivers’ perceptions of the time their children spend in outside play while in center-based preschool or childcare settings. This study found that while primary caregivers place importance on structured learning activities to prepare their children for kindergarten, they wanted more outdoor time than the 60 minutes per day which is recommended and also typically scheduled at many childcare centers (AAP, 2012; Marino et. al, 2012).

Primary caregivers reported that they did not know how much time their child actually spends outside in center-based preschools and childcare. This finding is consistent with a prior study that found primary caregivers are unable to accurately report the amount of time their child spends outside (Lau, Engelen, & Bundy, 2013). Efforts to increase primary caregiver knowledge of the amount of time their child actually spends outside may be an opportunity to increase outdoor playtime in preschool and childcare settings.

Many primary caregivers did not know if their child's center had a policy for outdoor play and fewer were familiar with specific policies about the amount of time spent outside, clothing, and weather. Among primary caregivers who reported they were familiar with the center policy, responses lacked specificity, such as time and degree of weather severity that required indoor play versus outdoor play. Lack of knowledge of policies may contribute to some of the potential barriers to outdoor play that were addressed by this study.

Several primary caregivers reported that they did not want their child to play outside in any level of wet weather. This could lead to limited outdoor play time even in minimally wet weather such as mist experienced commonly in Seattle. Several primary caregivers reported that they did not want their children to go outside in cold temperatures and snow. While most primary caregivers in this study did not experience barriers to outdoor play, teachers have reported that even a small number who do not support outdoor play in light rain, cooler temperatures or snow may hinder entire classrooms from going outside and a single child without weather-appropriate clothing can prevent an entire classroom from going outside (Copeland et. al, 2012). The key informant interview elaborated on the survey results regarding the primary caregiver's views about weather with more detail about perceptions of acceptable temperatures, rain levels, and snow levels. Additional qualitative research which gathers parental

perceptions of outdoor play in various weather conditions could inform center policies and communication efforts.

Prior studies have explored primary caregiver perceptions of preschool children's obesity, physical activity level, nutrition habits, and screen time (Hudson, Cherry, Ratcliffe, and MacClellan, 2009; Tandon et. al, 2011, Copeland et. al, 2012). To our knowledge, no other studies have explored primary caregiver perceptions of overall preschool activities and how outdoor play and physical activity is perceived as part of the structured school day.

There are potential implications of this study. Encouraging primary caregiver support of outdoor playtime may help to increase the amount of time children spend outside in preschool and childcare settings. Teacher reports of barriers to outdoor play that are related to primary caregivers indicate that primary caregivers are essential partners in enhancing outdoor play opportunities. Primary caregivers can provide support to staff and other primary caregivers by ensuring their child comes to school in suitable clothing for play, a potential facilitator to increasing outdoor play (Copeland et. al., 2012). The value primary caregivers' place on structured learning activities suggests the need to reframe the discussion of outdoor play time. A study of preschool teachers' perceptions of movement and learning reported teachers acknowledging the use of active play for learning and wanting more training in these areas. In addition, teachers cited confidence and social skill building, promotion of teacher-child relationship, and learning through engaging children's senses as benefits of physical activity (Gehris et al., 2014). Our key informant interview provided an example of a primary caregiver who valued indoor learning activities and valued outdoor play time as a break from structural learning. With more information about the learning benefits of outdoor play and the

incorporation of learning activities into additional outdoor play opportunities, primary caregivers may place a higher value on the need for structured and unstructured outdoor play.

Primary caregivers' limited knowledge about the amount of time their child spends outside, and the outdoor clothing and weather policies of their child's center, suggests the need for alternative and more effective communication between staff and primary caregivers. Currently, the centers sampled for this study distribute information about outdoor play primarily through newsletters. Centers wishing to increase primary caregiver adherence to policies should consider a verbal communication system or a mass text message reminder system to help primary caregivers dress their child appropriately for the weather. It is likely that some primary caregivers will still fail to provide adequate clothing or may oppose outdoor play time in other ways. Preschool and childcare centers need to find ways to ensure that the full classroom is not deprived of outdoor play because one or two children do not have adequate clothing. Finally, teachers' perceptions of "primary caregiver barriers" may be over-emphasized as most primary caregivers in this study generally did not agree with the obstacles described by teachers in the Copeland et al. study (2012) . While the key informant mother initially reported agreement with weather-related barriers to outdoor play on the survey, in the course of the interview she redefined the barriers as far less problematic than originally interpreted from the survey results alone.

There are several limitations to this study. First, the small convenience sample precludes generalization of the study findings to a broader population. This sample consisted only of English-speaking participants which excludes a potentially important cultural influence on primary caregiver perceptions of outdoor play. Additionally the perceptions of primary caregivers may not be accurately represented through a written survey due to the variability in

the interpretation of terms used to gauge perception such as "...how important are each of the following?" For example, while primary caregivers reported that they wanted their child to have more outdoor playtime than recommended, it is possible that they would report the same when asked about how much time their child ideally spends learning ABCs and numbers and other activities. This discrepancy would mean that primary caregivers may over report the amount of time that should be spent on all activities. Without a comparison of reported ideal times for other activities, there is no way to know if the reported time for outdoor play is realistic. This limitation could be addressed in future studies by including comparison activities. Future studies using qualitative interviews would also address this limitation by allowing greater depth in responses.

A strength of this study is the diversity of the participants' which is greater than most preschool studies with regard to primary caregiver age, education level, and race/ethnicity (Tandon, Zhou, Lozano, Christakis, 2011). In the present study, very few potential study participants were turned away due to language barriers and very few did not consent to participate in the study. This high level of participation minimizes the potential effect of non-response.

Conclusion

Primary caregivers are interested in having their child play outside during preschool and childcare, but may need more encouragement to be involved in helping facilitate outdoor play. Current research indicates preschool teachers experience primary caregiver related barriers to outdoor play but are interested in receiving training to expand outdoor play to include active learning (Copeland et al., 2009; Gehris et al., 2014). Future research is needed to discern the

relationship between primary caregiver perceptions of outdoor play and other learning activities that occur during preschool and childcare. The information gained from the key informant indicates the need for a more extensive qualitative study with primary caregivers. Understanding primary caregiver perceptions of their child's activities during preschool and childcare can improve programming and policies to better support children's overall learning experience.

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Study data were collected and managed using REDCap electronic data capture tools hosted at the University of Washington.¹ REDCap (Research Electronic Data Capture) is a secure, web-based application designed to support data capture for research studies, providing 1) an intuitive interface for validated data entry; 2) audit trails for tracking data manipulation and export procedures; 3) automated export procedures for seamless data downloads to common statistical packages; and 4) procedures for importing data from external sources. REDCap is made available by the Institute of Translational Health Science (ITHS) grant support (UL1 RR025014 from NCRR/NIH).

¹ Paul A. Harris, Robert Taylor, Robert Thielke, Jonathon Payne, Nathaniel Gonzalez, Jose G. Conde, Research electronic data capture (REDCap) - A metadata-driven methodology and workflow process for providing translational research informatics support, J Biomed Inform. 2009 Apr;42(2):377-81.

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Table 1: Characteristics of Adult Study Participants (N=78)

Participant Characteristic	No. (% of Total)
Mean age, y (SD)	33.8 (8.5)
Caregiver Relationship, No (%)	
Mother	62 (79.5)
Father	9 (11.5)
Grandfather	2 (2.6)
Grandmother	1 (1.2)
Other	2 (2.6)
Missing	2 (2.6)
Caregiver Race/Ethnicity	
Non-Hispanic White	36 (46.2)
African American	15 (19.2)
Hispanic/Latino	11 (14.1)
Asian/Pacific Islander	5 (6.4)
American Indian/Alaska Native	4 (5.1)
Other	4 (5.1)
Prefer Not To Answer/Missing	3 (3.9)
Caregiver Education	
Less than high school	3 (3.9)
High school/GED*	16 (20.4)
Some college	25 (32.1)
College graduate	20 (25.6)
Graduate or professional degree	12 (15.4)
Missing	2 (2.6)

*GED indicates General Equivalency Diploma

Table 2: Characteristics of Children

Child Characteristic	No. (% of Total)
Mean age, y (SD)	4.17 (8.9 months)
Child Gender	
Female	40 (51.3)
Male	36 (46.1)
Missing	2 (2.6)
School Enrollment	
Full Day	56 (71.8)
Half Day	19 (24.4)
Missing	3 (3.8)

Table 3: Importance of Activities in Preschool and Childcare

Activity	General Mean (SD)	Kindergarten Ready Mean (SD)
Learning ABCs and Numbers	4.77 (0.70)	4.95 (0.32)
Story Time	4.30 (0.75)	4.33 (0.76)
Science	4.28 (0.72)	4.26 (0.77)
Lunchtime/Snack time	4.22 (0.94)	3.99 (1.02)
Outside Playtime	4.21 (0.83)	4.19 (0.83)
Music	4.10 (0.79)	3.98 (0.85)
Make Believe Play	4.10 (0.88)	4.01 (0.99)
Arts and Crafts	3.99 (0.76)	4.03 (0.93)
Inside Playtime	3.78 (0.90)	3.85 (0.96)
Naptime	3.53 (1.25)	3.08 (1.19)

*Activities rated on a scale of 1 to 5, 1 being “least important” and 5 being “most important”

Table 4: Primary Caregiver Knowledge of Center Outdoor Policy

Primary Caregiver Knows	N(%)
the school has a policy for outdoor play	43(55.8)
the school has a policy for time spent outside	28(66.7)
Open-ended responses: “depending on the weather 15-30 minutes” “I believe it’s 30 minutes outside and 30 minutes indoor activities”	
the school has a policy for weather	32(78)
Open-ended responses: “switches to inside if it’s currently raining” “will not go out if too hot or cold”	
the school has a policy for clothing	26(63.4)
Open-ended responses: “if cold must wear jackets and hats etc.” “wear weather approved clothing”	

Table 5: Primary Caregiver and Staff Discussion of Outdoor Playtime

Initiated interaction	N(%)
Caregiver talked with staff	16(20.8)
Open-ended responses: “just to ask her to make sure my child wears gloves when cold” “I don’t allow my child to play outside when it’s cold, rainy, etc.”	
Staff talked with caregiver	18(23.4)
Open-ended responses: “they wanted to make sure the kids were dressed right” “they always remind us of weather changes and go over special activities”	

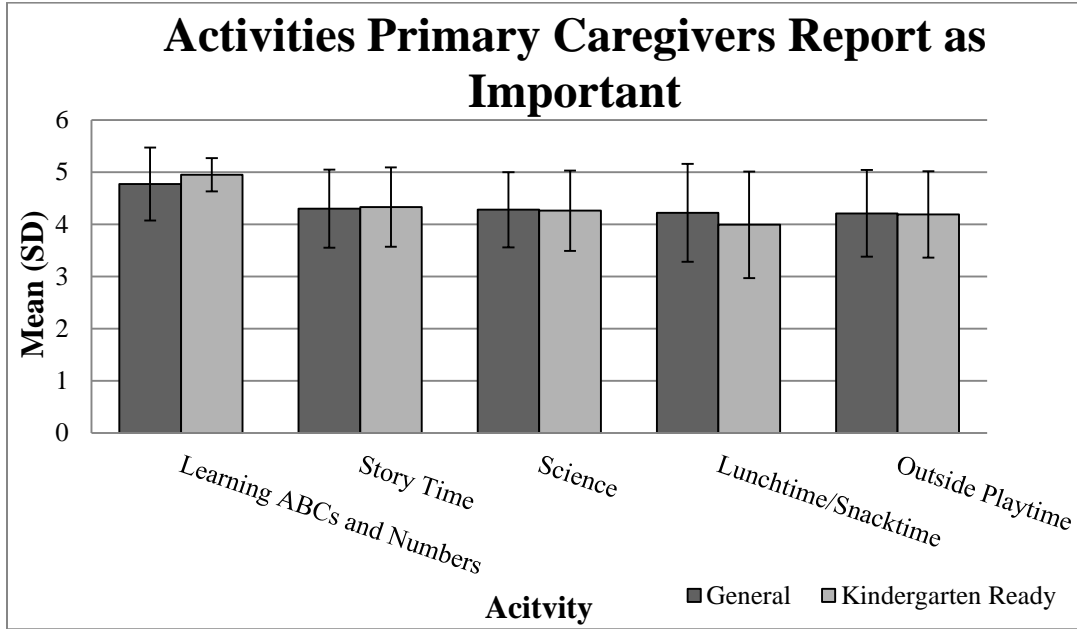


Figure 1.

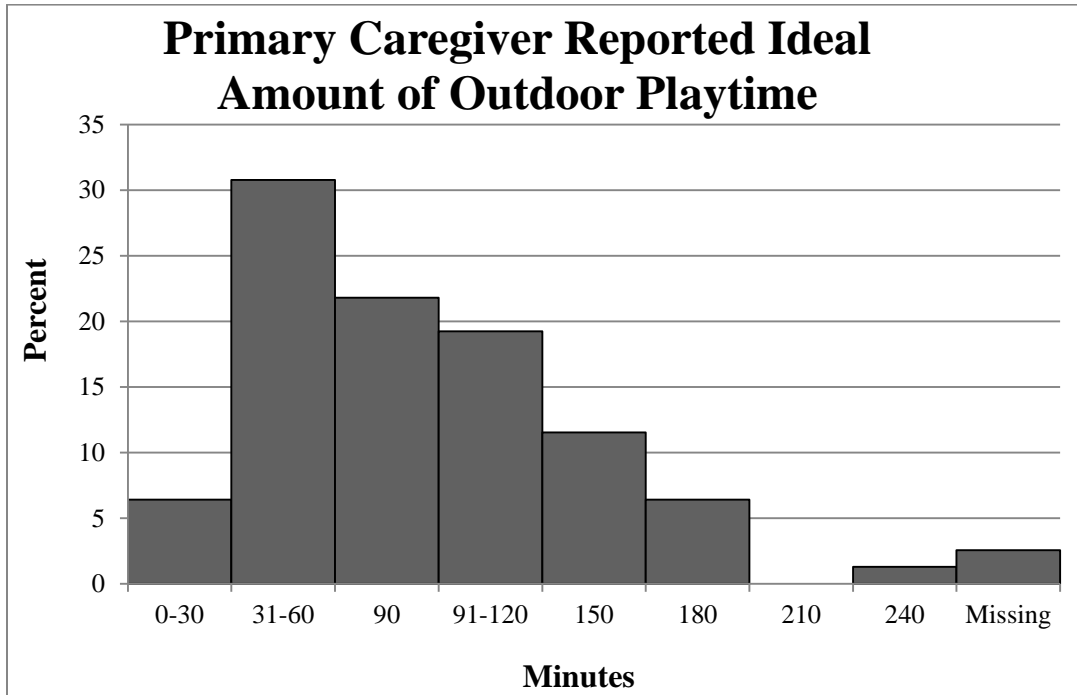


Figure 2.

Appendix A

Preschool Activities

We are interested in learning about your views of the activities children do in preschool and which activities are most important to parents and caregivers.

Circle the answer that best describes how you feel about the following statements:

Q1: Compared to the other activities listed below, how important is each of the following?

	Least Important		Somewhat Important		Most Important
Arts and Crafts.....	1	2	3	4	5
Learning ABC's and Numbers.....	1	2	3	4	5
Story Time.....	1	2	3	4	5
Naptime.....	1	2	3	4	5
Lunchtime/Snack Time.....	1	2	3	4	5
Music.....	1	2	3	4	5
Science Activities.....	1	2	3	4	5
Inside Playtime.....	1	2	3	4	5
Outside Playtime.....	1	2	3	4	5
Make Believe Play.....	1	2	3	4	5
Other(Please List):.....	1	2	3	4	5
Other(Please List):.....	1	2	3	4	5
Other(Please List):.....	1	2	3	4	5

Q2: In your opinion, how important is it for your child to attend preschool to prepare for kindergarten?

Not Important Somewhat Important Very Important Not Sure

If preschool is important, which activities do you think are most important for getting your child ready for kindergarten?

	Least Important		Somewhat Important		Most Important
Arts and Crafts.....	1	2	3	4	5
Learning ABC's and Numbers.....	1	2	3	4	5
Story Time.....	1	2	3	4	5
Naptime.....	1	2	3	4	5
Lunchtime/Snack Time.....	1	2	3	4	5
Music.....	1	2	3	4	5
Science Activities.....	1	2	3	4	5
Inside Playtime.....	1	2	3	4	5
Outside Playtime.....	1	2	3	4	5
Make Believe Play.....	1	2	3	4	5
Other(Please List):.....	1	2	3	4	5
Other(Please List):.....	1	2	3	4	5
Other(Please List):.....	1	2	3	4	5

Appendix A

Playtime Activities

Now think about your child's active playtime at school. Active playtime refers to the times when your child is playing with high energy. Examples are running, jumping, climbing, skipping, or dancing. Active playtime can be indoors or outdoors, teacher-led such as organized games, or free play when your child decides how to play.

Q3: Assume your child spends 8 hours at preschool. What is the ideal amount of time you would want your child to have for active playtime outdoors at preschool (on an average single day)?

_____ Hours _____ Minutes

Now tell us how much time your child actually spends playing outside during an 8 hour school day:

_____ Hours _____ Minutes _____ Not Sure

Q4: Circle how much you agree or disagree with the following statements in general:

I think playing outside is an important learning activity at school

Strongly Disagree Disagree Neither Disagree or Agree Agree Strongly Agree

Active outdoor playtime helps my child get ready for kindergarten

Strongly Disagree Disagree Neither Disagree or Agree Agree Strongly Agree

My child should **not** play outside in any rain, drizzle, or misty weather

Strongly Disagree Disagree Neither Disagree or Agree Agree Strongly Agree

My child should **not** play outside in any temperature cold enough to require a hat, gloves, scarf and boots

Strongly Disagree Disagree Neither Disagree or Agree Agree Strongly Agree

My child should **not** play outside in any level of snow

Strongly Disagree Disagree Neither Disagree or Agree Agree Strongly Agree

My child should **not** play outside when s/he is sick

Strongly Disagree Disagree Neither Disagree or Agree Agree Strongly Agree

I am too rushed in the morning to get my child ready to play outside at school

Strongly Disagree Disagree Neither Disagree or Agree Agree Strongly Agree

I am worried my child will get hurt when playing outside at school

Strongly Disagree Disagree Neither Disagree or Agree Agree Strongly Agree

I think story time, ABC's, numbers and science are **more important** for my child than going outside to play

Strongly Disagree Disagree Neither Disagree or Agree Agree Strongly Agree

Appendix A

<p>Q5: Does your child's school have a policy about outdoor active playtime?</p> <p><input type="checkbox"/> Yes (If yes) →</p> <p><input type="checkbox"/> No (go to Q6)</p> <p><input type="checkbox"/> Not Sure (go to Q6)</p>	<p>Does your school have a policy for the amount of time spent outdoors?</p> <p><input type="checkbox"/> Yes → Please Describe:</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Not Sure</p> <p>Does your school have a weather policy?</p> <p><input type="checkbox"/> Yes → Please Describe:</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Not Sure</p> <p>Does your school have a clothing policy?</p> <p><input type="checkbox"/> Yes → Please Describe:</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Not Sure</p>				
<p>Q6: A: <u>On a typical school day</u>, how much time does your <u>child</u> spend playing outside <u>while at home</u>? This can be playing at a park or playground, in the yard or street around your house (or the house of a friend, neighbor, or relative), or other recreation area (for example, swimming pool)?</p> <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;">Wake-up Time Until School</td> <td style="text-align: center;">After School Until Bedtime</td> </tr> <tr> <td style="text-align: center;">____ Hours ____ Minutes</td> <td style="text-align: center;">____ Hours ____ Minutes</td> </tr> </table> <p>B: <u>On a typical non-school day</u>, how much time does your <u>child</u> spend playing in the yard or street around your house (or the house of a friend, neighbor, or relative), at a park, playground, or outdoor recreation area (for example, swimming pool, zoo, or amusement park)?</p> <p style="text-align: center;">____ Hours ____ Minutes</p>		Wake-up Time Until School	After School Until Bedtime	____ Hours ____ Minutes	____ Hours ____ Minutes
Wake-up Time Until School	After School Until Bedtime				
____ Hours ____ Minutes	____ Hours ____ Minutes				
<p>Q7: Have you ever talked with your child's teacher or school staff about playing outside?</p> <p><input type="checkbox"/> Yes → If yes, please tell us why:</p> <p><input type="checkbox"/> No</p>					
<p>Q8: Has your child's teacher or school staff ever talked with you about outdoor playtime?</p> <p><input type="checkbox"/> Yes → If yes, please tell us why:</p> <p><input type="checkbox"/> No</p>					

Your Activities

The following question is about the time you spent being physically active in the last 7 days.

- ❖ Vigorous physical activities refer to activities that take hard physical effort and make you breathe much harder than normal physical activities like heavy lifting, digging, aerobics, or fast bicycling
- ❖ Moderate activities refer to activities that take moderate physical effort and make you breathe somewhat harder than normal physical activities like carrying light loads, bicycling at a regular pace, or doubles tennis. Do not include walking.

Q9: About how much physical activity do you do per week of moderate or vigorous physical activity?

Less Than 1 Hour 1 Hour 1.5 Hours 2 Hours 2.5 Hours More than 2.5 Hours

Appendix A

Questions about you and your child and/or children:

<p>Q1: Is your preschool child currently going to school for a full day or half day? (if you have more than one child in preschool answer for one child)</p>	<p>Q2: Please indicate the age and gender of your preschool child</p> <p><input type="checkbox"/> Female <input type="checkbox"/> Male</p> <p>___ Years ___ Months</p>																														
<p>Q3: How many other children 18 years or younger live in your household? _____ # of Children</p>																															
<p>Please indicate their age and gender</p> <table border="0" style="width: 100%; text-align: center;"> <tr> <td>Child 1:</td> <td>Child 2:</td> <td>Child 3:</td> <td>Child 4:</td> <td>Child 5:</td> </tr> <tr> <td><input type="checkbox"/> Female</td> <td><input type="checkbox"/> Female</td> <td><input type="checkbox"/> Female</td> <td><input type="checkbox"/> Female</td> <td><input type="checkbox"/> Female</td> </tr> <tr> <td><input type="checkbox"/> Male</td> <td><input type="checkbox"/> Male</td> <td><input type="checkbox"/> Male</td> <td><input type="checkbox"/> Male</td> <td><input type="checkbox"/> Male</td> </tr> <tr> <td>Age</td> <td>Age</td> <td>Age</td> <td>Age</td> <td>Age</td> </tr> <tr> <td>___ Years</td> <td>___ Years</td> <td>___ Years</td> <td>___ Years</td> <td>___ Years</td> </tr> <tr> <td>___ Months</td> <td>___ Months</td> <td>___ Months</td> <td>___ Months</td> <td>___ Months</td> </tr> </table>		Child 1:	Child 2:	Child 3:	Child 4:	Child 5:	<input type="checkbox"/> Female	<input type="checkbox"/> Female	<input type="checkbox"/> Female	<input type="checkbox"/> Female	<input type="checkbox"/> Female	<input type="checkbox"/> Male	<input type="checkbox"/> Male	<input type="checkbox"/> Male	<input type="checkbox"/> Male	<input type="checkbox"/> Male	Age	Age	Age	Age	Age	___ Years	___ Years	___ Years	___ Years	___ Years	___ Months	___ Months	___ Months	___ Months	___ Months
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<p>Q4: What is <u>YOUR</u> age? _____ years old</p>																															
<p>Q5: What is your relationship to the child attending preschool?</p>	<p><input type="checkbox"/> Mother <input type="checkbox"/> Father <input type="checkbox"/> Aunt <input type="checkbox"/> Uncle <input type="checkbox"/> Grandma</p> <p><input type="checkbox"/> Grandpa <input type="checkbox"/> Other (please specify) _____ <input type="checkbox"/> I prefer not to answer</p>																														
<p>Q6: Please indicate your race/ethnicity</p>	<p><input type="checkbox"/> African American <input type="checkbox"/> American Indian/Alaska Native <input type="checkbox"/> Asian/Pacific Islander <input type="checkbox"/> Hispanic/Latino</p> <p><input type="checkbox"/> Caucasian <input type="checkbox"/> Others (please specify) _____ <input type="checkbox"/> I prefer not to answer</p>																														
<p>Q7: What is the highest level of education you have completed?</p>	<p><input type="checkbox"/> Less than high school <input type="checkbox"/> High school/GED</p> <p><input type="checkbox"/> Some College <input type="checkbox"/> College graduate <input type="checkbox"/> Graduate or Professional Degree</p>																														