



Understanding the Perceptions, Practices, and Barriers of Physical Activity Opportunities in Toddler Classroom: A Qualitative Study in Toddler Childcare Providers

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Abstract

Despite childcare providers' substantial interaction with toddlers, very little is known about providers' perception of toddlers' physical activity (PA) and how to facilitate toddler PA. This qualitative study examines facilitators, barriers, and components of a PA intervention to improve toddlers' PA within the childcare setting. Providers from three childcare centers completed Qualtrics survey and participated in focus group meetings. Semi-structured focus group meetings were recorded, transcribed, and systematically analyzed. Providers viewed PA as essential for toddlers' health. Providers felt that toddlers' classroom behavior, attention span, and basic needs should be considered when engaging toddlers in PA. Providers expressed that a PA intervention targeting toddlers should be non-structured, include music and motor skill-related activities, occur 2–3 days/week, and last 10–30 min. However, structured activities should last < 5 min. This study highlights our understanding of providers' perceptions of PA, challenges they faced in getting toddlers to be active, and intervention components needed improving toddlers' PA.

Keywords Childcare providers · Early childhood · Movement

Résumé

Malgré l'interaction substantielle des fournisseurs de services de garde avec les tout-petits, on sait très peu de choses sur la perception des fournisseurs de l'activité physique (AP) des tout-petits et sur la façon de faciliter l'AP des tout-petits. Cette étude qualitative examine les facilitateurs, les obstacles et les composants d'une intervention d'AP pour améliorer l'AP des tout-petits dans le cadre de la garde d'enfants. Les prestataires de trois garderies ont répondu au sondage Qualtrics et ont participé à des réunions de groupes de discussion. Des réunions de groupes de discussion semi-structurés ont été enregistrées, transcrites et analysées systématiquement. Les prestataires

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considéraient l'AP comme essentielle pour la santé des tout-petits. Les prestataires ont estimé que le comportement des tout-petits en classe, la durée d'attention et les besoins de base devraient être pris en compte lors de l'engagement des tout-petits dans l'AP. Les prestataires ont indiqué qu'une intervention d'AP ciblant les tout-petits devrait être non structurée, inclure de la musique et des activités liées aux habiletés motrices, se dérouler 2 à 3 jours par semaine et durer de 10 à 30 minutes. Cependant, les activités structurées devraient durer moins de <5 minutes. Cette étude met en lumière notre compréhension des perceptions des prestataires concernant l'AP, les défis auxquels ils sont confrontés pour amener les tout-petits à être actifs et les composantes de l'intervention nécessaires pour améliorer l'AP des tout-petits.

Abstracta

A pesar de la interacción sustancial de los proveedores de cuidado infantil con los niños pequeños, se sabe muy poco sobre la percepción de los proveedores de la actividad física (AF) de los niños pequeños y cómo facilitar la AF de los niños pequeños. Este estudio cualitativo examina los facilitadores, las barreras y los componentes de una intervención de AF para mejorar la AF de los niños pequeños dentro del entorno de cuidado infantil. Los proveedores de tres centros de cuidado infantil completaron la encuesta de Qualtrics y participaron en reuniones de grupos focales. Las reuniones de los grupos focales semiestructurados fueron grabadas, transcritas y analizadas sistemáticamente. Los proveedores vieron la AF como algo esencial para la salud de los niños pequeños. Los proveedores sintieron que el comportamiento de los niños pequeños en el aula, la capacidad de atención y las necesidades básicas deben tenerse en cuenta al involucrar a los niños pequeños en la AF. Los proveedores expresaron que una intervención de AF dirigida a niños pequeños debe ser no estructurada, incluir música y actividades relacionadas con las habilidades motoras, ocurrir 2-3 días a la semana y durar 10-30 minutos. Sin embargo, las actividades estructuradas deben durar menos de <5 minutos. Este estudio destaca nuestra comprensión de las percepciones de los proveedores sobre la AF, los desafíos que enfrentaron para lograr que los niños pequeños sean activos y los componentes de intervención necesarios para mejorar la AF de los niños pequeños.

Introduction

The toddler period (12–36 months) is a critical period of rapid physical and cognitive development (Berk, 2013; Ginsburg, 2007). Researchers have reported that during the toddler period, young children are gaining strength and finding new ways to practice both their object control (e.g., kicking) and locomotive (e.g., running) skills (Fees et al., 2015; Gallagher et al., 2011; Gallahue & Ozmun, 2006). Young children's involvement in or lack of involvement in locomotive and object control skills activities could impact their overall physical activity (PA) levels. Participation in PA and reduced sedentary activity during the toddler period are beneficial for development. For example, PA has been associated with motor and cognitive improvements (Carson et al., 2017; Ellis et al., 2017). Despite these associations, studies show that

toddlers spend a significant portion of their day engaged in sedentary activity (Brujns et al., 2020; Ellis et al., 2017; Fees et al., 2015; Vanderloo & Tucker, 2015). Currently, six studies have examined ways to improve toddlers' PA. Of these studies, five studies were designed to encourage parents to participate in active play with their toddlers and were set within the home or primary care setting (Black et al., 2021; LoRe et al., 2019; Moir et al., 2016; Verbestel et al., 2014; Wolman et al., 2008) and one study focused on the childcare center (Benjamin Neelon et al., 2014).

Presently, 55% of United States toddlers spend a portion of their day in some form of non-parental care (e.g., childcare centers) (Cui & Natzke, 2020). Therefore, centers can serve as an essential setting to intervene on toddlers' PA. During the childcare hours (8:30–4:30 pm), toddlers spend between 74 and 89% of their time engaged in sedentary behaviors and very little time engaging in PA (Carson et al., 2016; Gubbels et al., 2011; Vanderloo & Tucker, 2015; Wijtzes et al., 2013). Sedentary behavior that toddlers participate in can be broadly categorized into activities related to their care [i.e., diaper changing, mealtime (snacks and lunch), and playtime activities. During playtime, whether indoor or outdoor, research has shown that toddlers tend to engage in mostly stationary and motionless (i.e., sitting or lying down) or stationary with movement of the limbs or trunk (i.e., sitting and playing with toys) activities (Fees et al., 2015; Van Cauwenberghe et al., 2011). Most of the PA that toddlers typically engage in during childcare consist of music-based activities such as dancing, playing with portable equipment indoors and outdoors, or going for walks (Fees et al., 2015).

One study has been implemented within the childcare center aimed at improving toddlers' PA, in which the intervention focused on changing center-level PA policies and practices (Benjamin Neelon et al., 2014). However, the intervention did not address the specific roles that providers play in toddlers' PA. Within the classroom, providers play a critical role in meeting toddlers' physical and emotional needs. In 2015, Hesketh et al. assessed providers' perceptions related to toddlers' PA (Hesketh et al., 2015). Researchers reported that although providers perceived PA to be important, a large percentage of providers believed that toddlers required less PA than the recommended amount (~180 min of total activity per day) (Canadian Society for Exercise Physiology, 2017; Hesketh et al., 2015). The study by Hesketh et al. provided a first step in our understanding of the perceived role that providers play in toddlers' PA.

In a 2019 review, Jones et al. advocated the need for PA interventions targeting toddlers and that these interventions should be age- and developmentally appropriate (Jones et al., 2019). In doing so, it is important to consider factors about the toddler classroom that makes it different from other classrooms. For example, researchers have reported that compared to the preschool classroom environment, providers within the toddler classroom have to build into their daily schedule time for self-care activities such as toilet training or diaper changing (Fees et al., 2015; Lally et al., 2008). Therefore, the scheduling of these activities impacts the amount of time providers allocate for other activities such as PA. Hence, it is not feasible to implement childcare center-based PA interventions originally designed for preschool-age children in toddlers. Therefore, it is important to determine factors that would either enhance or hinder PA promotion in toddlers. Prior to developing PA interventions targeting toddlers within the childcare center, it is

important to have a clear understanding of the types of activities that providers believe are feasible for toddlers. Therefore, this qualitative (focus-group) explorative study examines potential facilitators, barriers, and components of a PA intervention designed for toddlers.

Materials and Methods

Recruitment and Participants

Purposeful sampling technique was used to identify and recruit toddler childcare providers from three childcare centers in Western Massachusetts with similar PA environments (e.g., outdoor place space, indoor and outdoor PA equipment, and classroom space that enables active play) and policies (e.g., time allocated within the day for gross-motor playtime, and provider training in PA and involvements with children during gross-motor playtime) for their toddler program (Palinkas et al., 2015). Participants were recruited through word of mouth and presentations at the identified childcare centers. Participants were eligible for the study if they were teachers in one of the participating centers' toddler classrooms. In the three participating centers, there were a total of 17 toddler providers, of which 15 providers (primary and assistant) participated in the study. Two providers did not participate in the study due to time conflicts. Participating providers ($n = 15$) completed informed consent documents, which provided detailed description and rationale of the study and were offered a small compensation (\$15) for their participation. All study protocols were approved by the University Institutional Review Board. The Consolidated Criteria for Reporting Qualitative Research (COREQ) was used to report the study procedure and results (Tong et al., 2007).

Survey Administration

After consenting, participants were emailed a link to complete an online survey via Qualtrics (a hard copy version was provided if requested) before the focus group meeting. The questionnaire was designed to assess participants' demographic information, self-reported height and weight [(used to calculate body mass index (BMI)], experience as providers, general knowledge and beliefs regarding PA in toddlers, current classroom PA policies and practices. Participants were asked to complete the questionnaire prior to their center's scheduled focus group meeting. The survey responses were included in the qualitative analysis.

Focus Group Procedures

A total of three in-person focus groups (one at each center) were conducted during October 2018. Each focus group meeting lasted for approximately 1.5 h and

Table 1 Questions for toddler childcare provider focus group

Online Survey Questions

- What do you view is your role for physical activity in your classroom?
How does the center support physical activity in toddlers?
How do you incorporate physical activity into your day?
What are some of the current barriers and challenges to physical activity that you encounter in a day?
How do you balance physical activity inside the class versus outside of the class?
What resources does your center provide for you to implement your physical activity lesson plans?
Do you feel your students' motor abilities affect how you plan your activities?
What types of physical activities do the toddlers in your classroom enjoy the most?
What modifications would you make to your current physical activity curriculum and schedule to target physical activity?
Would you rather do a dance-based program or a structured motor skill learning program? Or, is there another style you would suggest?
In a given day, how long should each physical activity session be?
If you incorporate music, does it increase the enjoyment level of the physical activity and what kind of music do you use?
How many days a week would you want to incorporate the intervention?
Would you want a program that ties into the learning standards?
How involved are the parents of your classroom?

Focus Group Questions

- In a typical day, what kind of activities do your toddlers like to participate in?
What do you think about physical activity in toddlers? Do you think they get enough activity?
How do you incorporate physical activity into your classroom?
What things would you like to see in a physical activity program designed for toddlers?
How many days a week would you want to incorporate a physical activity program into your schedule? What time of day would work best to incorporate a physical activity program? How long should each physical activity session last?
What do you anticipate will be the greatest challenges in implementing a physical activity program for toddlers? Do you have any suggestions on how to address these challenges?
In doing a physical activity program, some centers will get the intervention right away. But others will not get it until later. If you were in the center that was not getting the program, what type of program you would want to do that does not involve physical activity?
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took place at the childcare center. One research assistant audio recorded the session. The primary investigator (first author) facilitated all of the focus group meetings and utilized semi-structured questions to generate discussion among providers (Table 1). Primary investigator had no prior relationship with participants before conducting the focus group meetings.

Data Analyses

A primary and secondary transcriber ($n=6$) transcribed the audio files from the focus group meetings. A tertiary researcher simultaneously listened to each audio file and read the transcripts in tandem to ensure there were no discrepancies. Transcripts for each focus group were created after all discrepancies were

addressed. Transcriptions from the focus groups were combined and organized by the question, then center, and used for analyses.

Participants' descriptive statistics were summarized using Stata (Release 15.0, College Station, TX: StataCorp LLC). Qualitative analyses used to derive themes from data were completed manually in three phases. In Phase 1, an inductive and open-coding approach was used to code the final transcript. Two researchers were assigned the same questions and independently coded the respective section of the secondary transcript. The researchers highlighted notable quotes and labeled them with a preliminary theme. In Phase 2, all quotes were copied to an Excel file by question once independent analyses were completed in Phase 1. Both researchers assigned to each question labeled the quotes with the themes they found most appropriate. The researchers discussed the quotes and themes question by question (until consensus was reached), and a document was created, including the preliminary themes and respective quotes. In Phase 3, the preliminary themes and quotes were assessed and consolidated into main themes. The themes were defined, and themes lacking sufficient support by quotes were removed. Themes were removed when their supportive quotes could not stand alone without the context of the conversation. Quotes were extracted and thematically organized. Finally, themes were assigned a name and defined.

A researcher coded the survey responses after the focus groups were analyzed and themes were defined. Notable quotes not represented in themes previously identified from the focus groups were extracted and thematically organized.

Results

Participants were mostly white (92.8%), 38.4 ± 12.5 years old, and had an average self-reported BMI of 26.1 ± 4.3 (kg/m²). Over 93% of providers had some college education and 9.5 ± 8.7 years of experience as toddler childcare providers. Four themes, including subthemes, were identified (Table 2).

Focus Groups

Four main themes emerged from the focus groups. The four themes included attitudes toward physical activity in toddlers, considerations for engaging with toddlers, environmental barriers to physical activity, and components of intervention designs. Subthemes were also identified within each main theme.

Attitudes toward Physical Activity in Toddlers

The first main theme was attitudes toward PA in toddlers which were defined as the providers' views on PA in toddlers (Table 2). Two subthemes (behavioral

Table 2 Focus group thematic definitions and results on physical activity facilitators and barriers

Themes	Definition	Subthemes
Attitudes toward physical activity	Providers' views on physical activity in toddlers	<p><i>Motor skill development</i>—movement is necessary for motor skill development</p> <p><i>Behavior Management</i> behavior is less favorable on days without physical activity</p>
Providers' considerations for engaging with toddlers	Necessary information to properly attend to and work with toddlers during physical activity or gross-motor playtime	<p><i>Behavior</i>—unpredictable and music and physical activity are the main behavior management modality</p> <p><i>Attention Span</i>—variable and substantially impacts the activities providers are willing to provide</p> <p><i>Basic Needs</i>—diaper changes, scheduled but spontaneous needs require smooth transitions from the activity to the diaper change assuring toddlers know they will return to the same activity</p>
Environmental barriers to physical activity	Environmental features that impact the implementation of physical activity	<p><i>Space</i>—outside physical activity more conducive to physical activity than the small indoor space</p> <p><i>Weather</i>—cold weather requires providers to dress toddlers in extra clothing which takes up a substantial amount of time</p> <p><i>Safety</i>—identifying and addressing safety issues immediately</p>
Components of intervention designs	Components and considerations for toddler physical activity intervention design	<p><i>Frequency</i>—2–3 days/week</p> <p><i>Duration</i>—10–30 min/sessions, sessions ≥ 10 min need variation to maintain engagement</p> <p><i>Activity type</i>—music and motor skill activities toddlers enjoy and are most engaged when activities include music activities should be designed to improve motor skills to reach necessary milestones</p>

management and motor skill development) were identified within providers' attitude toward PA in toddlers. The first subtheme was behavioral management. Classroom behavior was reported to be less favorable on days when toddlers do not participate in PA. One provider stated, "Yes. It's [PA] necessary, and it's good for them because they need to get all that energy out because if they don't—one day, I didn't do physical activity, and they were crazy." Another provider added, "Obviously physical activity in toddlers is very important because if they don't move around too much then they don't nap well, then we don't get anything done." Therefore, PA was identified as a tool to manage behavior in the toddler classroom.

The second subtheme was motor skill development. The providers expressed that PA was a necessity to help toddlers develop their motor skills to meet gross-motor skill milestones. For example, one provider said, "It's [PA] good for gross development." A second provider echoed this by saying, "...it [PA] is fundamental, and they do need it." Lastly, one provider mentioned how PA was important for overall development. They said, "It's still just as important as ya know—learning how to go potty."

Providers' Considerations for Engaging with Toddlers

The second main theme that emerged was providers' considerations for engaging with toddlers (defined as the necessary information to properly attend to and work with toddlers) when engaging in PA or gross-motor playtime (Table 2). Considerations for engaging with toddlers manifested in three subthemes, including behavior, attention span, and basic needs. The first subtheme was behavior and was defined as the toddlers' compliance with activities and management of those behaviors. Providers expressed the view that toddlers' behavior is unpredictable and varies day-to-day and therefore impacting how they schedule PA or gross-motor playtime during the day. For example, one provider stated, "They could be fine one minute, you turn around, and it's totally different." A provider at another center extended this notion and said, "Yeah it's really, and again, a case-by-case basis. I mean usually, there's a plan, like this is a child that does this and when so and so does this, this is what we do." Another provider identified tantrums as a behavioral issue that impacts toddler compliance to PA. Two providers from one of the centers stated that they currently had many toddlers who have frequent tantrums. One provider said, "We just have a lot of kids that have tantrums right now." The next provider expanded on this by explaining how to effectively deal with tantrums. They stated, "We're at the point where we just say 'Okay. Done. Stop, and don't give it any attention ... [toddlers] learn that 'okay, this isn't effective, this isn't an effective way to get attention.'" Although it was not discussed as much, one center also reported dealing with tantrums in the same way. One provider said, "It's [tantrum] not 100% all of the time but it's uh pretty consistent, might be like one kid that's not feeling it but they will understand they can go to the cozy corner for a second, control yourself, rejoin us."

The next subtheme that emerged in considerations for engaging with toddlers was attention span. Not surprisingly, providers stated that the length of the toddlers' attention spans are unpredictable and vary among toddlers during any given activity.

For example, one provider said, “Their, what do you call it; their attention span is ridiculous like –It’s either ridiculously great or ridiculously not great depending on their mood...”. Between-child differences in attention span were also mentioned. A provider expressed this when they said, “There’s always like those 2 or 3 [toddlers] that like to go off and do their own thing. And then there’s those 5 that’ll go away, come back, go away, come back.” Variabilities in toddlers’ attention span can directly dictate the activity the providers will do. One provider identified that having other activity options prepared was necessary to accommodate short attention spans. They stated, “Always have an extra thing up your sleeve, so if those 10 min they’re done with it, we can whip something else out.”

The third subtheme that arose within considerations for engaging with toddlers is basic needs such as diaper changes. To avoid as many interruptions as possible, all centers had scheduled diaper change time. One center changed diapers at a specific time. One provider spoke for their centers’ schedule and stated that “We set a specific time, cause yeah, so like cause—so we do diapers at 9 and 11.” Although a specific time was not specified, a provider at another center said, “There are certain times of the day where we change all children at a specific time too.” Providers discussed how diaper changes could lead to the toddlers becoming upset as well as the techniques they used to manage toddlers’ distress. One provider stated, “Give them a warning you don’t just whisk them away and grab them out of what they’re doing, but ‘in 3 more minutes we’re going to change your diaper and then oh it’s your turn we’ll come right back...”.

Environmental Barriers to Physical Activity

The third main theme was environmental barriers to physical activity defined as environmental features that impact the implementation of PA (Table 2). Space and weather were identified as barriers related to the implementation of PA in toddlers. Providers consistently identified limited space as a barrier that significantly impacted their decisions on how and where to provide PA. For example, a provider stated, “... they don’t have a whole lot of physical space to really kind of move as much as they really would need to get- to make it really beneficial.” Outside spaces were identified as settings more conducive to PA. Daily walks and other forms of outside movement seemed to be a popular means of providing the toddlers with daily PA. One provider stated, “In our classrooms, we go for a lot of walks. We try to go for a walk almost every day.” A provider at a second center said, “We do like to take them on walks, a mile walk. Most days!”.

Weather was another subtheme identified within environmental barriers to physical activity. Providers expressed how winter weather impedes their ability to take the children outside. Specifically, the time required to dress all the children in their snow gear reduced their outside time for PA. One provider summarized this concern; “If you want to do something outside, you have to work around weather or snow... putting their snow clothes on can take up to like 15 to 20 min just to get them dressed to go outside.” Providers did agree that although the weather can be a deterring factor, it does not stop providers from taking the children outside, although it does impact

the amount of time they spend outdoors. At one center, a provider said, “We’ll bring them outside you know almost regardless of the weather ...unless they say, oh, we’ll get a call from the administrator saying it’s too hot or it’s too cold.” Another provider followed up and said, “It’s like wind chill below 20 maybe we start to say oh maybe we’re only going to go out for like 15 min or something or 20 min instead of a half hour.” Providers at another center expressed similar feelings suggesting that PA was still an option in cold weather, however, the duration may be shortened. One provider said, “If the sidewalks are clear, and the temperature is—Appropriate.—is about 32. Then we’ll go for a walk—and we can go for a walk, then we go for a walk. It may not be the full mile, but we will still go for a walk.”

Components of Physical Activity Intervention

The last main theme identified was components of physical activity intervention defined as components and considerations for toddler PA intervention design (Table 2). The subthemes included safety, frequency, duration, and activity type. The providers expressed that toddlers’ safety was a primary concern for the implementation of a PA intervention. Providers described safety issues as altercations between toddlers, age-inappropriate items, and considerations for more challenging activities. One provider expressed how conflicts between toddlers are possible and that knowing how to intervene is important especially when objects are involved. They stated, “...like when they’re trying to do this activity, so and so takes this thing and is bonking kids over the head... they also need to like know how to set limits.” The use of only age-appropriate items was mentioned at two different centers. At one center, a provider stated that no items that say “3 and up” are allowed. A second provider followed up and said, “You have to be very selective in what you pick because our items will have ..., if it says choking hazard, you can’t have it.” There were motor development activities that were also described as being more dangerous than others. Providers also expressed how the more motor-complex activities are good for the toddlers, but safety becomes more of an issue. One provider summarized this: “Climbing up on something that might be a little high and you know they’re kind of unsure but they can do it if someone’s there to you know to spot them like climbing up you said the ladder.” Importantly, although not mentioned at every center, providers at one center expressed that any researchers coming into the center must know how to respond to unsafe behavior. One provider stated, “Also, like if you’re people who are coming in like they’re going to have to know what to do when a child is being unsafe.”

The next two subthemes were frequency and duration. Providers expressed that an intervention should be between two to three days/week a week. As for duration, providers suggested that the duration of each session should be between 5 and 30 min. The providers in one center suggested that each activity should be 5 min before the toddlers move onto the next activity. The first provider stated, “Like 5 min in one station, 5 min in another.” Following this statement, another provider echoed this when they said “5 min is enough time for a

toddler to be focus on like one activity.” Another provider at another center echoed this when they suggested that some toddlers will be uninterested after 5 min and most will be done by 10 min. The provider stated, “I think you’re going to lose some children after 5 min a few more after 10...” A provider from a different center agreed with this notion when they stated, “Like, five, five to seven minutes, I mean, if they’re doing really well with it, you can keep them a few minutes longer, but then you have this group who’s antsy.” There were two providers from two centers that suggested 15–30 min. However, in each instance, the other providers stated that 30 min scheduled for PA is acceptable but that a single activity should be between 5 and 10 min. “A half an hour is pushing it,” said one provider. Another provider at this center followed up with, “Anywhere, depending upon their attention span that day, anywhere from 5 to 10 min per activity.” Providers also expressed some implications of different activity lengths. For the longer durations suggested (> 10 min), flexibility and variety were noted as the best way to keep toddlers moving. A provider stated, “The idea of the ability of being flexible where they can do this, or you can do this one but more than one option for them to move around.” Lastly, providers expressed that more structured activities should last < 5 min due to toddlers’ attention span.

The last subtheme was activity type. The providers described the types of activities that a PA intervention should focus on. Activities with a music and motor skill component were discussed most. All centers stated how important involving music is to getting toddlers to participate in activities. One provider said, “With our kids, we’ll—our kids like to dance, so we’ll put music on and we’ll dance, our kids love doing the hokey-pokey,...all our kids really love doing it.” Another provider summarized the need for music when they said, “...they’ll do it- anything with music.” Motor skill activities were described as activities toddlers enjoy doing. One provider said, “Dancing, music, obstacle courses, they love a lot of that stuff, they love running, definitely love running, jumping off of something, climbing on stuff, they love all that stuff.” A provider from another center said, “Things like that where they can both stand, jump climb and jump off of, it’s just all of that combined is like the ultimate like gross-motor experience.” Overall, providers expressed the need for motor skill activities and how much the toddlers enjoyed those activities.

Survey Results

Many of the responses in the survey were representative of the themes identified in the focus group data. Themes that were identified in the survey responses related to provider role, parental involvement, and favorite toddler activities are presented in Table 3. Provider role was defined as the providers’ perceived role in facilitating PA within the classroom environment. Providers explicitly stated that their role was to provide safe activities and activities that assist in improving toddler development and motor skills. Lastly, providers described parental involvement as being variable and minimal. All providers excluding one stated that parents have little to moderate involvement in the classroom. One participant expressed the interest in having

Table 3 Survey thematic definitions and results

Theme	Definition	Results
Provider role	Providers perceived role in facilitating physical activity in the classroom	<i>Motor skill development</i> —movement is necessary for motor skill development
Activities enjoyed by toddlers	Specific activities that toddlers enjoy the most	<i>Favorite toddler activities</i> —jumping, dancing, running, climbing, walking, sliding, and riding tricycles
Parental involvement	Providers' perception of parental involvement in the classroom	<i>Variable</i> —depends on the specific parents and/or the nature of the involvement <i>Level of involvement</i> —little to moderate parental involvement

parents more involved stating, “It would be great to involve parents somehow so they see the importance of physical activity and see what things their toddlers are accomplishing.” Favorite toddler activities were defined as specific activities that toddlers enjoy the most. The activities included were jumping, walking, climbing, sliding, dancing, and riding tricycles.

Discussion

This qualitative study was undertaken to identify providers’ views on toddler PA, potential facilitators and barriers, and components of a provider-led PA intervention for toddlers. We first investigated providers’ general perception of PA in toddlers. Overall, providers’ attitudes about PA in toddlers were positive. Providers viewed their role to be vital in facilitating safe PA and activities that support toddler development and basic needs. Our findings with respect to providers’ perception of PA on toddlers’ health are similar to those reported by Hesketh et al. (2015) who reported that providers believed that PA is beneficial to toddlers’ health. In the current study, it is worth noting that providers indicated that participating in PA allowed toddlers an avenue to release energy and thereby improved classroom behavior. Similarly, in preschool-age children, studies published by our research group have shown that participating in PA can lead to improvements in preschoolers’ classroom behavior (Alhassan & Whitt-Glover, 2014; Alhassan et al., 2016; Burkart et al., 2018).

In discussing their perception of PA in toddlers, providers discussed the daily routines that they have to consider while caring for toddlers. A common theme among providers was that toddlers’ basic needs, behavior, and attention span were the driving factors in scheduling their day. For example, providers noted the unpredictable nature of toddlers’ attention span and its impact on providers’ abilities to maintain a schedule and implement classroom activities. Within a given day, providers usually plan multiple activities in the event that the primary activity does not hold toddlers’ attention. Therefore, in considering classroom PA, a range of activities needs to be planned and considered when attempting to implement PA interventions.

A significant proportion of toddlers are not toilet trained or are starting the toilet training process. Due to this, providers have to perform diaper changes multiple times per day, which has an impact on their daily schedule. To do this without disrupting classroom dynamics, providers discussed several strategies for managing toddlers’ behaviors to meet this basic need. For example, the providers aim to change diapers at specific times to limit interruptions. Providers also reassure toddlers that they will return to the activity they were doing to decrease the likelihood of them getting upset and refusing diaper change. The timing of diaper change as a basic need should be considered in future classroom-based PA interventions in toddlers.

Due to their stature and limited mobility, most toddler classrooms have small space, limiting the types of activities that can be implemented indoors. In the current study, providers highlighted the lack of classroom space to enable toddlers to move freely or to participate in PA. The lack of space impacted their decision on whether or not to encourage toddlers to participate in PA within the classroom.

To tackle this barrier, providers indicated that they rely on the outside space to engage toddlers in PA, including daily walks. Despite the outdoor spaces being an effective means to overcome limited indoor space, the weather was identified as a barrier to PA, especially during the winter months.

The last part of this study focused on obtaining providers' opinions on what a feasible PA intervention is for toddlers. Overall, providers expressed the need for researchers to be aware of safety-related issues in designing and implementing PA interventions for toddlers. Importantly, providers stated that researchers would need to be comfortable with addressing unsafe behavior they observe. In describing the characteristics of a PA intervention that is feasible in toddlers, providers felt that the intervention must be flexible in nature with each session duration between 10 and 30 min, interventions with less flexibility and more structured in nature should last 5 min due to toddlers' limited attention span. Although most providers suggested short-duration program, it is important to note that a couple of providers did suggest longer-duration program given how long it takes to get toddlers to transition between activities.

Providers also suggested that intervention activities should focus on music and motor skills because these types of activities are already core aspects of toddler classroom. The overall characteristics of feasible PA interventions are similar to what has been implemented in preschoolers (Alhassan et al., 2012, 2016, 2019). In one of the few studies that have tried to change PA in toddlers within the childcare environment, the intervention consisted of asking providers to have play space that is separate from preschoolers or for providers to engage with toddlers to make PA more fun and engaging (Benjamin Neelon et al., 2014). However, this study did not provide specific activities for providers to engage the toddlers to improve their PA.

The current study had some strengths such as the use of qualitative study design to determine barriers of PA within the toddler daily schedule and the components needed to engage toddlers in PA intervention. Despite these strengths, there are some limitations to this study, such as the small convenient sample size and similar PA environment and policies of the childcare centers. Despite these limitations, the findings provide novel qualitative information that can help researchers better design effective provider-led PA interventions designed for toddlers within the childcare center.

Conclusion

Due to their custodial role, providers play a significant role in helping toddlers shape their PA behavior; therefore, it is important to understand their perception of PA in toddlers and how it can be improved. The present study highlights some of our understanding of providers' perception of PA and the challenges they face in getting toddlers to be active. For example, due to providers' perception of PA in toddlers and the role they play in facilitating safe activities that support toddler development and basic needs, interventions aimed at increasing toddler activity may benefit from improving providers' self-efficacy in facilitating PA within the toddler classroom. Our results also shed light on the components needed in an

intervention aimed at improving PA in toddlers. Further, this study demonstrates the unique issues in facilitating PA in toddlers rather than simply applying what the field recognizes as issues in facilitating PA for preschoolers. This qualitative study's findings present important factors that can inform the development of future PA interventions for toddlers in childcare settings.

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Data Availability The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Declarations

Conflict of interest Authors have no conflicts of interest or funding to report.

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