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PHYSICAL ACTIVITY

At-Risk Youth in an After-School Program: Structured vs. Unstructured Physical Activity

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Abstract

Youth physical activity (PA) levels are a central focus for physical educators and health professionals worldwide. This study (a) examined the PA levels of children during structured and unstructured PA lessons of an after-school program (ASP) and (b) described the children's perceptions of structured and unstructured PA. Participants were 31 children, M_{age} (10.37 ± 1.4 yrs.), BMI percentile (79.86 ± 28.01), who actively participated in an ASP. Activity measurements examined mean steps per minute, percentage of MVPA, and percentage of activity time during unstructured and structured PA opportunities. Children accumulated higher mean steps per minute and percentage of activity time during unstructured PA; however, they had a higher mean percentage of MVPA during structured PA. There were statistically significant differences between mean steps per minute and mean percentage activity time. The findings suggest that implementation of

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forms of unstructured PA may increase the daily PA of youth and help them to meet recent national recommendations.

An estimated 32% of U.S. youth are considered overweight or obese, and the prevalence of extreme obesity varies by ethnic and age groups (Durstine, Gordon, Wang, & Luo, 2013; Koebnick et al., 2010; Tudor-Locke, Lee, Morgan, Beighle, & Pangrazi, 2006). Scholars have argued that early intervention programs supporting children and adolescents may be an excellent method of preventing adult obesity early on (Beets, Beighle, Erwin, & Huberty, 2009), as children and adolescents considered overweight or obese are more likely to become obese as adults. The persistence of obesity from early life into adulthood can present individuals with consequences related to metabolic syndrome (MetS). The presence of this metabolic condition is associated with increased risk of disease (including cardiovacular disease, diabetes, and some cancers) and all-cause mortality (Katzmarzyk, Church, Janssen, Ross, & Blair, 2005).

Individual, family, environmental factors, and affluence can contribute to the increase in the percentage of youth who are overweight and obese (Cadogan, Keane, & Kearney, 2014). Studies have focused on evaluated treatments for childhood and adolescent obesity, with methods that focus solely on behavior modification (Sallis, Prochaska, & Taylor, 2000). Population-based approaches targeting youth who are at risk that focus on obesity have shown positive short-term effects over a longitudinal period (Bray, Bouchard, & James, 1998).

Numerous studies have examined youth physical activity (PA; Beighle, Morgan, Masurier, & Pangrazi, 2006; Trost, Rosenkranz, & Dzewaltowski, 2008; Tudor-Locke et al., 2006). These studies have described difficulties in providing evidence for clear, health-enhancing effects of PA for children and adolescents. It is believed that participation and enjoyment in physical activities may prevent health problems from overweight or obesity across the life span (Lee et al., 2012). Findings suggest that a majority of youth fail to meet daily PA recommendations in the United States.

It is recommended that children and adolescents participate in at least 60 min of moderate-intensity PA most days of the week, preferably daily. The U.S. Department of Health and Human Services' (2016) Physical Activity Guidelines for Americans set a national

agenda to increase the proportion of children and adolescents who engage in daily moderate-to-vigorous PA (U.S. Department of Health and Human Services, 2016). According to the Office of Disease Prevention and Health Promotion, "only 20.6% of adolescents met the current physical activity guidelines for aerobic and muscle-strengthening physical activity in 2012" (p. 8). It is imperative for children's and adolescents' health and well-being that these recommendations and goals be achieved.

PA may be divided into two types: structured and unstructured. Structured PA is any activity that is organized, planned, and developed with the assistance of an instructor, with intentional directions, objectives, goals, or focus. Gutierrez, Williams, Coleman, Garrahy, and Laurson (2016) investigated the effect of physical education and structured recess on sixth-grade students' percentage of daily PA level across gender, BMI, and PA outside of recess. Results indicated that boys were more active than girls and students in the lower percentile for BMI were more active than students in higher BMI percentiles. Findings indicate that PE and recess attribute to roughly 30% of students' daily PA, when based on daily steps (Tudor-Locke et al., 2006). Boys tend to accumulate more activity time and steps during recess and outside of school (Beighle et al., 2006). Further, after-school programs (ASPs) have emerged as a viable source for children to achieve daily PA (Beighle et al., 2006; Riddoch, 2004; Trost et al., 2008).

Unstructured PA is considered free time, self-selected free play, nonguided activity, or nonformal activity. Unstructured PA may also be defined as PA that allows individuals to engage in creative, explorative, and social play (SPARK PE, 2015). Literature investigating unstructured PA is less prevalent. These studies typically report unstructured discretionary time includes recess, lunch-break recess, and any out-of-school activity. Fewer studies have examined PA levels of children during recess (Beighle et al., 2006; Gutierrez et al., 2016; Tudor-Locke et al., 2006; Woods, Graber, Daum, & Gentry, 2015). Studies have found that children can accumulate meaningful PA during recess and that "children spend the majority (> 60%) of their recess time in physical activity and a smaller proportion of outside of school time in activity (≈ 20%)" (Beighle et al., 2006, p. 518).

Together, these results suggest that unstructured PA opportunities can account for a significant proportion of youth PA.

Trost et al. (2008) examined PA levels among children who attended ASPs, in an attempt to understand the activity preferences of children who are overweight and obese and attend these settings. They identified significant differences in moderate-to-vigorous PA (MVPA) levels between free play and structured PA sessions. Children in organized PA sessions had approximately 24–55% lower MVPA than children in free-play sessions (Trost et al., 2008). This finding indicates that unstructured PA performed in a natural context, such as self-selected free play and games, has the potential to enhance the PA engagement of youth.

Frymier and Gansneder (1989) defined *at risk* as a process or function that lies on a continuum associated with an individual's life experiences, while Moore (2006) delineated *at risk* as "a concept reflecting chance or probability of increasing risk factors that raise the chance for negative outcomes" (p. 3). Influencing factors affecting this population include low socioeconomic status, increased sedentary behaviors, low parental involvement, substance abuse, and other environmental contexts (Curtis, Hinckson, & Tineke, 2012; Thompson & Kelly-Vance, 2001; Vizcaíno et al., 2008). As youth are persistently exposed to a variety of circumstances that classify them as at risk, research suggests that ASPs may be one solution to a community and nationwide challenge. Thompson and Kelly-Vance (2001) suggested that "youth mentoring programs implemented in a systematic, structured method have the opportunity to assist youth in overcoming the obstacles placing them at-risk" (p. 229).

Currently, 6.5 million children attend ASPs, while 20–25% of low- to moderate-income children aged 6 to 14 years spend time in ASPs (Halpern, 1999; Trost et al., 2008). Recently, studies have focused on the role of ASPs in the promotion of and engagement in PA during this discretionary time (Beets et al., 2009; Gaudreault, Shiver, Kinder, & Guseman, 2016). Access to ASPs may be an opportunity for youth to attain a majority of PA outside of school, and the provision of ASPs that motivate children to engage in PA and other healthy behaviors can be viewed as one potential solution that enhances the lives of youth who are at risk.

Self-determination theory (SDT; Deci & Ryan, 1985) provided the theoretical framework for this study. SDT proposes that the fundamental psychological needs of competence, autonomy, and relatedness produce human motivation (Deci & Ryan, 2000, 2004; Ryan & Deci, 2000). *Competence* is an individual's inherent desire to feel effective in interacting with the environment (Deci & Ryan, 2000; White, 1959). *Autonomy* is the feeling of control in a person's actions or freedom from external control and influence. *Relatedness* is a feeling of connectedness or belonging to a group, and individuals sense positive emotions while acting within a group (Deci & Ryan, 2000).

Participation in PA is determined through a person's perception of pleasure and fulfillment with engaging in the activity. For the behavior to be self-determined, an individual must have the ability to act efficaciously and positively with the environment, have interdependence, and feel connected with others. Children's perceptions of unstructured and structured PA opportunities may be influenced by their motivation and behaviors through the basic needs of competence, autonomy, and relatedness, as these tenets can significantly influence the motivational direction in which individuals navigate.

SDT has provided a theoretical framework for understanding motives that strongly influence children's and adolescents' attitudes toward PA (Nurmi, Hagger, Haukkala, Araujo-Soares, & Hankonen, 2016). Few studies have examined the associations between autonomy, competence, relatedness, and PA behavior patterns among youth who are at risk (McDavid, McDonough, Blankenship, & Lebreton, 2017; Ntoumanis, 2005; Nurmi et al., 2016; Vierling, Standage, & Treasure, 2007). Some studies of self-determined motivation in PA among youth have focused on specific contexts such as PE, sport, and differences between sexes. Other studies have supported fostering the basic psychological needs satisfaction of PA among youth. Other findings have indicated that having a choice in activity increases engagement and positive perceptions in PE for females (Mitchell, Gray, & Inchley, 2015). Therefore, the degree to which females feel autonomous and have a relatedness-supportive environment may be a strong predictor of their PA engagement. Males seem to require autonomy, competence, and relatedness in SDT, which is strongly associated with satisfaction and engagement in positive PA behaviors.

Children's perceptions of unstructured and structured PA opportunities may be influenced by their motivation and behaviors through the three basic psychological needs of SDT. This study attempts to fill a void in the literature surrounding best practices for addressing programming for ASPs working with youth who are overweight, obese, and/or at risk. More specifically, the basic psychological needs of competence, autonomy, and relatedness assist with understanding the behavior and motivation supporting children's perceptions. This study aims to provide an explanation to unanswered questions regarding unstructured and structured PA in youth who are at risk.

While much is known about ASPs, PA levels of youth who are at risk, and PA levels of children with overweight/obesity challenges, little is known about the activity levels of children who are at risk and attend ASPs. Examining the amount of PA that children achieve outside of school is important for determining where and when children receive PA opportunities. Further, research needs to examine the differences in children's PA during structured versus unstructured discretionary times. Therefore, this study (a) examined children's PA levels within a multidisciplinary ASP during structured and unstructured PA lessons and (b) described children's perceptions about structured and unstructured PA contexts. Research questions guiding this study included

1. How active are the children during unstructured and structured PA opportunities?
2. How do the children describe unstructured and structured PA experiences with the program?

Method

A mixed-methods design was employed to answer the research questions. Quantitative data sources included mean step counts, mean percentage of time spent in MVPA, and mean percentage of time spent in activity time, all captured during the ASP weekly sessions. Qualitative data included individual interviews with each child (N = 31), which provided an in-depth understanding of the children's perceptions of unstructured and structured PA experiences.

Participants and Recruitment

Participants were 31 children, M_{age} (10.37 ± 1.4 years), BMI (24.29 ± 8.74), and BMI percentile (79.86 ± 28.01), who participated

in the ASP. Participants were removed from the data set if they were unable to attend at least 8 of the 12 sessions. Table 1 provides baseline demographics and anthropometric characteristics for the ASP participants.

Table 1
Descriptive Characteristics of ASP Participants (N = 31)

Characteristic	*N* (%)	*M* ± SD
Age (years)		
6–14 years		10.37 ± 1.4
Sex		
Male	18 (58.1)	
Female	13 (41.9)	
Ethnicity		
Caucasian/White	16 (51.61)	
Caucasian/Hispanic	9 (29.03)	
Hispanic	2 (6.45)	
Multiracial	3 (9.68)	
African American	1 (3.22)	
Anthropometric Measures		
Height (cm)		140.83 ± 11.97
Weight (kg)		48.24 ± 20.55
Waist Circumference (cm)		78.10 ± 18.21
Body Mass Index (BMI)		24.29 ± 8.74
BMI Percentile		
Normal (5th to 85th percentile)	11	48.6 ± 25.97
Overweight (85th to 95th percentile)	2	90.8 ± 3.3
Obese (≥ 95th percentile)	18	97.7 ± 2.18
Mean BMI percentile across all participants		79.86 ± 28.01

The ASP occurred on the campus of a mid-size public institution in the Mountain West and a nearby community college. The two towns were Mountain West communities with populations near 32,000 and 63,000. Participants in this study were selected from six elementary and middle schools located in the respective cities.

Following university institutional review board approval, children meeting the selection criteria were identified by local pediatricians, wellness centers (family counselor), and school personnel

(school nurse, principal, social worker, and/or counselors) and were referred to the research team. An open invitation to participate was extended via e-mail or in person. Parents provided informed consent prior to their child participating in the program and/or study. The children provided verbal assent prior to activity.

Program Intervention

Participants engaged in a 24-week intervention; however, data collection only occurred during the first twelve weeks of programming. The program met after school, once per week, for approximately 2 hr. All sessions incorporated four curricular components. Table 2 provides a sample weekly lesson plan of a typical session for the ASP.

Table 2
Sample Lesson Plan Format of Weekly Session

Time	Component	Description
3:35 PM–3:45 PM	Pedometer Calibration	Arrival of participants and mentors. Pedometer calibration and recorded logs begin.
3:45 PM–4:00 PM	Unstructured Free Time	Participants engage in unstructured PA with mentors.
4:00 PM–4:05 PM	Pedometer Data Collection	Participants' pedometer data recorded on handwritten log.
4:05 PM–4:25 PM	Physical Activity Component	Participants engage in structured PA with mentors.
4:25 PM–4:30 PM	Pedometer Data Collection	Participants' pedometer data recorded on handwritten log.
4:30 PM–4:50 PM	Nutrition Component	Participants learn a topic surrounding nutrition and engage in structured PA related to this topic.
4:50 PM–4:55 PM	Data Collection	Participants' pedometer data recorded on handwritten log.

Table 2 (cont.)

Time	Component	Description
4:55 PM–5:10 PM	Behavioral Health Component	Participants engage in partner and group discussions/activities encompassing behavioral health.
5:10 PM–5:15 PM	Pedometer Data Collection	Participants' pedometer data recorded on handwritten log.
5:15 PM–5:27 PM	Unstructured Free Time	Participants engage in unstructured PA with mentor.
5:27 PM–5:30 PM	Pedometer Data Collection	Pedometer data for each participant uploaded into FitStep Pro 2.0 software prior to club departure.

Each weekly session began with approximately 20 min of unstructured PA. During this time, the children were free to choose activities, equipment, and games of their own design. During this time, they typically engaged with undergraduate student mentors who participated in the ASP for service-learning experience. Following this, the children engaged in PA during a structured, instructor-led lesson for 20 min. These lessons were adapted from the SPARK curriculum, *Focus on Fitness* and *Spotlight on Skills*, which included detailed lesson plans that teach fitness concepts (SPARK, 2015). As a result, the structured PA lessons were designed with lesson objectives centering on active, high-intensity movement opportunities through games, sport, dance, and fitness skill.

Structured PA was embedded throughout the remaining two sessions. Nutrition and behavioral health lessons were roughly 20 min each. All sessions were designed to maximize MVPA while teaching concepts in these curricular areas. Finally, the last 20 min of each session was devoted to unstructured PA wherein the children were encouraged to remain active yet engage in an activity of their choice.

Procedures

Instrumentation. Data on children's PA levels were measured via Gopher FitStep Pro pedometers. Recently, pedometers have gained additional support as an increasingly practical and acceptable tool for estimating PA levels of children in field settings (Tudor-Locke, WIliams, Reis, & Plato, 2002). Numerous studies have described pedometers as feasible, user-friendly devices that can provide researchers with valid and reliable information related to steps per minute, time spent active, and time spent engaged in MVPA (Beets, Bornstein, Beighle, Cardinal, & Morgan, 2010; Brusseau et al., 2011; Flohr, Todd, & Tudor-Locke, 2006; Tudor-Locke et al., 2006).

Participants were assigned a pedometer, and calibration followed the guidelines established by Gopher Sport (2016) for the FitStep Pro pedometer. Calibration was completed prior to each program and data collection session for accuracy. The lead researcher trained an undergraduate intern in the calibration protocol. This intern calibrated of all pedometers throughout the data collection process. At the beginning of each session, the intern performed calibration on each pedometer, without exception. At the end of each session component, the intern recorded each child's total step count, MVPA, and activity time accumulated on a pedometer log. The intern was also recorded the time that children began a component of the program (Table 2). Following the final 20-min period of unstructured PA, the children lined up in order of their pedometer number to upload their data into the Gopher FitStep Pro 2.0 software. Each child's data were then saved onto a laptop exclusively used for this purpose. The electronic data were uploaded to a saved warehouse folder in a password-protected drive, and only the investigators involved in the ASP had access to these data.

The children wore pedometers throughout each session and were consistently instructed to keep their pedometers on at all times and following calibration. Program coordinators, research interns, and undergraduate student mentors closely observed the children to ensure that tampering of devices did not occur.

Data Collection

Pedometers. Pedometer data were collected for 10 of the first 12 weeks of the program, following the protocol described. Data were

not collected during Weeks 1 and 12 due to administrative time constraints (e.g., paperwork, anthropometric measurements). Data sources included mean steps per minute, mean MVPA, and mean activity time during structured versus unstructured PA.

Individual interviews. Individual semistructured interviews (following an interview guide; Table 3) captured children's perceptions of the two PA opportunities. Interview questions were designed to gather the children's perceptions, feelings, and enjoyment of the two PA contexts. In the interview, the children were shown four cards, each with a picture or diagram representing the four program components (free time, PA game, nutrition game, and behavior activity). The children were then asked to select a favorite component and describe their reasons for selecting it. Interviews served to support pedometer data, were audio recorded, and were transcribed verbatim for analysis.

Table 3
Sample Semistructured Interview Guide

1.	What is your favorite thing about the program?
2.	Tell me about what kinds of things you do while you are here?
Show them task cards:	
3.	Out of these four cards, which choice of activity do you like doing the most here?
4.	Can you give me some reasons why you like this activity so much?
5.	Describe some of the things you may do during this time?
6.	Which activity do you think you stay most active during?
7.	How about the other choices you see on the task cards?
8.	Is there anything else about these choice that you would like to tell me?

Data Analysis

Quantitative data. Data were analyzed via within-subjects repeated-measures analysis of variances (ANOVAs) for differences in children's mean steps per minute, mean percentage of time in MVPA, and mean percentage of activity time between structured and unstructured PA. Data were examined for extreme outliers and none were identified.

Qualitative data. Interview data were analyzed inductively in collaboration with an experienced scholar with expertise in qualitative design following protocol outlined by Merriam and Tisdell (2016). The analysis process involved open coding, code categorization, theme development, and the search for negative cases. Following this, themes were considered collectively with quantitative data so the researchers could fulfill the purpose of the study and answer the research questions. Finally, for the researchers to fully explain and make meaning of the children's perceptions, data were considered relative to the literature surrounding PA and SDT.

Results

Mean Steps Per Minute, Mean MVPA, and Mean Activity Time

Within-subjects repeated-measures ANOVAs examined whether mean steps per minute, mean percentage in MVPA, and mean percentage of activity time in structured versus unstructured PA were statistically significantly different. The null hypothesis was assumed (i.e., there was no statistically significant difference in the dependent variables based on the independent variable of structured versus unstructured PA). For protection against Type I error, a Bonferroni correction corrected the alpha level (i.e., taking the traditional alpha level of .05 and dividing by the number of dependent variables, in this case 3), providing an adjusted alpha level of 0.017.

Repeated-measures ANOVA univariate tests of within-subjects effects showed a statistically significant difference based on activity type with regard to children's mean steps per minute, $F(1, 30) = 191.91$, $p < .001$, $\eta^2 = .87$, and mean percentage of activity time, $F(1, 30) = 165.29$, $p < .001$, $\eta^2 = .85$. Differences in children's mean percentage of time in MVPA approached statistical significance, $F(1, 30) = 6.27$, $p = .018$, $\eta^2 = .17$.

Figure 1 shows the mean steps per minute across the two independent variables. Figures 2 and 3 illustrate percentage of time spent engaged in MVPA and percentage of time spent engaged in activity time, respectively, across the total time available in structured and unstructured PA opportunities.

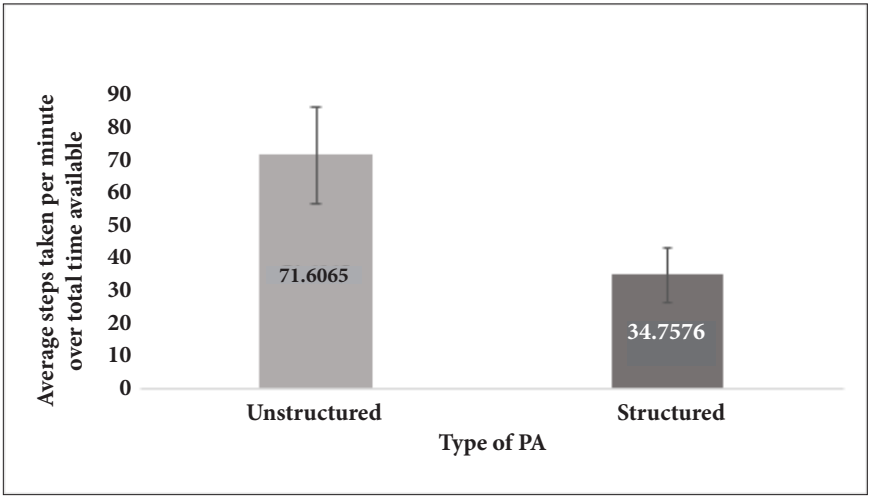

Figure 1. Difference in mean steps per minute taken during unstructured and structured physical activity, which was statistically significant. Standard error is represented in the figure by the error bar on each column.

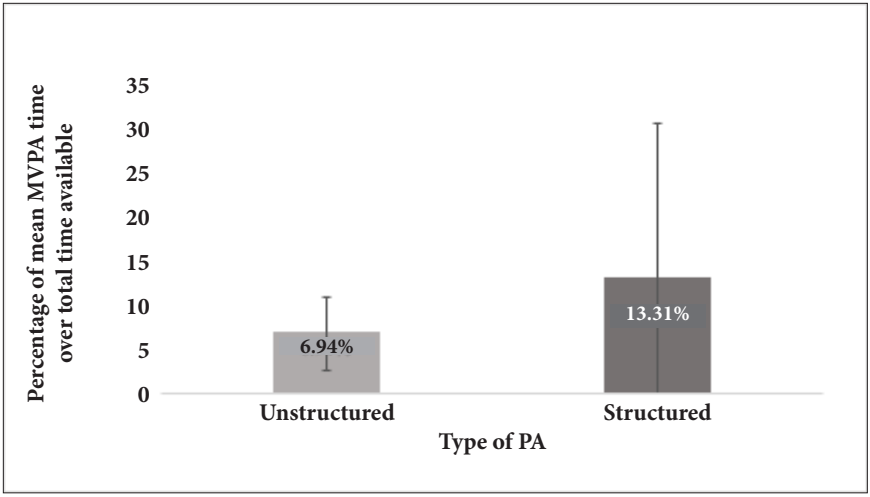

Figure 2. Difference in mean percentage of time spent engaged in MVPA during the total time available during unstructured and structured physical activity. There was no statistically significant difference between percentages of time spent in MVPA in unstructured versus structured activities. Standard error is represented in the figure by the error bar on each column.

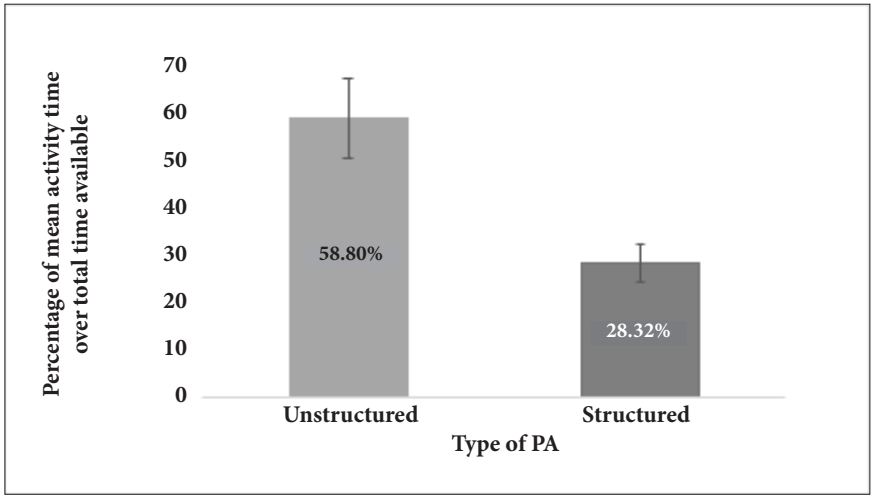

Figure 3. Difference in mean percentages of time spent engaged in activity during the total available time of unstructured and structured PA opportunities. A statistically significant difference was found for the percentage of time spent active in unstructured versus structured physical activity. Standard error is represented in the figure by the error bar on each column.

Children's Perceptions of Unstructured and Structured PA

Interview data revealed that choice and connectedness were the most important determining factors that influenced the children's preference for different PA opportunities. For the purpose of this study, the psychological needs of autonomy and relatedness were most evident.

Unstructured PA. The children described unstructured PA opportunities as their favorite component of the ASP. Eleven of the 24 participants indicated that they most enjoyed the unstructured "free time" component. When asked why free time was their favorite, almost all of the children described that free time provided their choice of the activities in which to engage. For example, Hadley (age 11, Grade 5) stated, "That you can do whatever you want and you don't have to do what they tell you" (Interview 22). As another example, Dylan (age 11, Grade 5) specified, "Free time is the best, 'cause I get to do what I want" (Interview 5). A number of the children explained that choice and freedom were the primary reasons for preferring

unstructured over structured PA. Patrick (age 12, Grade 5) detailed, "You are able to choose what you're able to do and choose your intensity" (Interview 15). Another participant, Sam (age 10, Grade 5), stated, "You don't have to worry about stuff people tell you . . . I don't like being told what to do" (Interview 4)

Structured PA. Among the 24 children interviewed, 8 identified the structured PA opportunities as their favorite component. The children described the social context of participation with friends as the primary reason for their preference of this type of activity. When asked to respond to the question, "What is your favorite thing about the ASP?" Laura (age 11, Grade 5) stated,

> Playing all the games and getting to interact with everyone . . . in free time, we get to play with whoever we want and with our mentor, but I like physical activity more because I get to socialize with a lot more people. (Interview 12)

Similarly, Sam (age 9, Grade 3) said, "You get to have help, and it's going to go up and down and you have to tell them and you have to sort of work together. Like tell each other and communicate with each other" (Interview 8). These children consistently described playing and working together with friends and mentors as a primary factor for their preference of the structured PA opportunities.

Conclusion. Nearly half of the participants either selected unstructured free time or structured PA lesson as their favorite component of the program. For unstructured free time, choice was the focal point, as those who selected the structured PA typically enjoyed the ability to interact and connect with their friends and mentors. A major finding across interview data was that the children preferred physically active program components over all others. The only two components the children identified as favorites were free time and the PA lessons, which were the only two components of the program that strictly focused on PA. Taken together, results indicated that being active was what these children enjoyed the most. This is a considerable finding, as research indicates that children who are at risk generally do not find PA enjoyable (Deforche, De Bourdeaudhuij, & Tanghe, 2006; Rukavina & Li, 2008). Put simply, the children in this program preferred being physically active during the ASP.

Discussion

The purpose of this study was to examine children's activity levels during unstructured and structured PA and their perceptions of these PA opportunities in the ASP program. Research suggests that the allocation of PA through multiple outlets can assist children and adolescents with accumulating the necessary daily PA recommendations (Beets et al., 2009; Brusseau et al., 2011). This study provides new insights about the activity levels of children who are at risk and participate in structured and unstructured PA during an ASP.

The Value of Unstructured PA Opportunities

Mean steps per minute. A major finding of this study was the difference between the mean steps per minute of available time within the ASP during unstructured versus structured PA components. In comparison, Gutierrez et al. (2016) investigated structured physical education and recess contributions through step counts. Similar studies examining the PA contributions of recess and PE found elementary students "took 50.9–59.5 steps/min during their recess and PE times" (Brusseau et al., 2011; Tudor-Locke et al., 2006). The children in this study took fewer steps than children in other investigations. One possible explanation is that children in this study were identified as at risk.

The statistically significant difference between mean steps per minute accumulated by participants in this study indicates that unstructured PA opportunities, as opposed to structured PA opportunities, can provide a significant contribution to achieving high rates of PA engagement for youth who are at risk. The findings of this study support this and may indicate that ASPs that offer PA opportunities are a viable option to increase the total amount of steps per minute for children. Emphasizing the promotion of unstructured PA outside of school may increase the total amount of activity time and thus enhance PA and health behaviors.

Mean percentage of activity time. On average, children in the ASP engaged in a higher percentage of total activity time 58.8 ± 14% during unstructured PA components. Consistent with other studies, this study reveals that children in ASPs accumulate meaningful PA during unstructured PA (Beighle et al., 2006; Tudor-Locke et al., 2006). Consistent with the youth in Trost et al. (2008), in this study

youth who are at risk attained nearly 60% of total activity time, with respect to the total time of unstructured PA available. This finding suggests that interventions such as this ASP could consider the contributions that unstructured PA formats may provide children. While the children were engaged on average 58.8% of the total time available during the unstructured components of the ASP program, and only 28.32% during structured PA, it stands to reason that youth who are at risk may benefit more from unstructured PA opportunities during ASPs.

Enjoyment and autonomy (SDT). The tenets of autonomy and competence within SDT (Deci & Ryan, 2004) were especially pertinent in this study. These can help to explain children's motivation to engage in specific PA behaviors during the ASP. Among the 24 participants interviewed, 14 described choice as a motive for their preference of unstructured versus structured PA. Autonomy supportive environments provide individuals with choice, independence, control, and/or freedom to perform intrinsically. The findings indicate that autonomy is a critical factor to the children's desire to be physically active, as their preference for unstructured PA, and the ability to choose their activities, translated to increased measures in all activity variables (i.e., steps per minute, minutes in MVPA, total activity time).

The Value of Structured PA Opportunities

Mean percentage of MVPA. This study found that participants achieved a higher percentage of time actively engaged in MVPA during unstructured PA opportunities, in comparison to structured PA. Fairclough, Beighle, Erwin, and Ridgers (2012) argued that health-enhancing PA levels in the after-school segment predominantly come through structured PA, which is similar to the findings in this study. The findings were consistent with those in Trost et al. (2008), who reported higher levels of MVPA during unstructured free-play sessions.

The percentage of time children in the ASP spent in MVPA during unstructured PA (13.31%) components of the ASP nearly doubled the percentage of time spent in MVPA during structured PA (6.94%). Trost et al. (2008) found children's MVPA levels during structured PA opportunities to be 24–55% lower on average than during structured PA sessions. Various explanations could clarify

the differences between findings; however, in this study, youth spent a higher percentage of time spent actively engaged in MVPA during structured PA. Overall, these findings suggest that children may not require structured environments to accumulate MVPA; however, the findings also indicate structured PA opportunities allow children to accumulate MVPA. Through different forms, activities structured or organized to increase PA can assist children with meeting the national PA recommendations, including the ability to maximize the benefits received.

Enjoyment and relatedness. Approximately half of the children (11 of 24) articulated that having the ability to interact and connect with others was the reason they preferred the structured PA component. Motivation to be physically active during structured PA was often conveyed through descriptions of peer relationships, reflective of SDT's (Deci & Ryan, 1985) tenet of relatedness. Several studies have demonstrated the contributions that physical education, recess, and ASPs provide and the extent to which positive relationships with peers can positively affect intrinsic motivation and variables related to engaging in PA within these contexts (Blankenship, 2008; Ullrich-Frenc & Smith, 2006; Vazou, Ntoumanis, & Duda, 2006). This was certainly present for a majority of participants within this study. Perhaps this calls for the development or creation of an environment that fosters relatedness, which may enhance or increase enjoyment and engagement in PA. Apparently, contextual social factors of structured PA that encourage relatedness may be key for some children to pursue PA for their own motivation and enjoyment. Creating structured environments fostering this basic psychological need of relatedness has utility in the development of positive perceptions of PA in youth. Health professionals and practitioners must seek methods and strategies to deliver quality PA opportunities that develop the motor skills, knowledge, beliefs, and attitudes for lifelong health-enhancing behaviors. Ultimately, the effect of unstructured PA on activity engagement could shed light on how to stimulate continued participation. If the primary goal of a program is to increase children's PA, then perhaps utilizing activities that are more unstructured in nature can assist with reaching this objective. Unstructured PA may be a viable option for increasing children's and adolescents'

PA levels, when delivered in a safe and positive motivational climate that invites high levels of PA engagement.

Limitations. This study had several limitations. It examined children's PA levels through quantitative data analysis; therefore, a small sample size does not provide enough significant power. Power increases the ability to detect a real difference or relationship. Running a repeated-measures ANOVA can assist in accounting for this, as running a test "within-subjects" provides justification of the small sample size.

A second limitation involved an internal threat to validity. This limitation was the threat of instrumentation with the use of pedometers to capture specific measures of PA in youth. Specific techniques discussed in the methodology were employed to control for instrumentation problems associated with pedometers. The limitation of instrumentation can also present the Hawthorne effect, in which the participants alter their PA due to the utilization of the pedometer.

A third limitation was the unpredictability of ASPs. Persistent problems arise through the inconsistencies related to programming. One of these inconsistencies is participants' attendance due to school events, sporting events, and sickness. Future research should focus on specific programming needs that allow ASPs to operate and function in a consistent, unwavering manner.

Conclusions and Implications for Practice

Based on these findings, it is suggested that practitioners examine alternative methods to increase the daily PA levels of youth. ASPs with the goal of increasing total PA time for children can benefit from including unstructured PA opportunities. The opportunity to enhance autonomy and relatedness within the dynamic nature and context of ASPs could serve to support children's motivation to engage in PA. PA opportunities are a viable way of enhancing children's feelings of autonomy and relatedness, which can be implemented into any type of after-school curriculum/program in which youth who are at risk participate. Practitioners should not view structured and unstructured PA opportunities in opposition of one other, but rather they need to choose between these activity formats. Both should be used for maximum PA benefits and motivation toward

PA. The concern for the need for increased PA in children and adolescents is paramount. Offering children opportunities to engage in PA in a variety of unstructured and structured formats, ASPs could help children to reach the recommendations of daily PA. All things considered, the answer is not structured or unstructured PA. Both structured and unstructured PA opportunities used in conjunction not only maximize PA but also ensure maximum chances of health benefits and an increase in children's motivation toward PA.

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