A Photovoice Project: Urban Elementary Girls' Perspectives on Physical Activity

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Abstract: Photovoice is a community-based participatory research method where participants can showcase their life experiences through photography. The objective of this study was to have adolescent girls attending an after-school program use photovoice to represent their perceptions of physical activity practices. Photovoice was used to allow adolescent girls to express their perspectives, through photographs and narratives, of their personal and community strengths and concerns related to their involvement in physical activity. The phenomenological methodology was used as a framework for the study. Qualitative analyses were conducted throughout the research process. Constant comparison was used to analyze the focus group, scrapbook data, and notes recorded by the author to determine key themes and ideas. Participants for the study included 14 girls attending a school in an urban area. Benefits of physical activity as provided by the girls in their personal lives and the community included: understanding activity contributed to wellness, increased social opportunities, and the school as a hub of activities. Personal and community barriers to physical activity included: lack of neighbourhood safety, being involved in other sedentary activities, parental rules restricting outside play, outside conditions, personal choices to not exercise, and a lack of opportunity to exercise. Potential ways to increase physical activity among these participants are to create more group games and activities at the after-school program daily. Involving parents in activities with the girls at home may increase physical activity levels while at home.

Keywords: Photovoice, physical activity, urban, elementary, girls.

INTRODUCTION

Background

Obesity rates have continued to increase in the United States [1]. In 2010, adolescent obesity rates increased to 17 % and ethnically diverse, low-income children had some of the highest obesity rates [2]. Adolescents are recommended to engage in physical activity for 60 minutes or more each day [3]. Increased physical activity can reduce obesity and risks of chronic diseases. Unfortunately, despite the known benefits, many adolescents do not meet the recommendations outlined in the Physical Activity Guidelines for Americans [3]. Furthermore, research suggests that there is a decline in physical activity from childhood into adolescence. The trend is more prominent in girls, particularly among girls in urban settings [4].

Photovoice

Photovoice is a method that may be beneficial to better understand barriers to physical activity and engage adolescents in the research process [5]. Photovoice is a community based participatory research method that uses cameras to take photographs [6]. More specifically, photovoice may be used to gain a better understanding of personal experiences among underprivileged populations [7]. This methodology uses photographs to encourage dialogue. It also stimulates participants to depict their perception of the environment visually through photos and verbally through interviews or focus groups [7].

Photography has been used with adolescents to increase their interest and encourage creativity in the research process [8]. Also, research has shown that the use of multiple data collection methods provides useful information that cannot be gathered from a single method [8]. It has been used to highlight social and environmental factors that can affect health and to advocate for improvement in health for communities [7]. This method has been used with hard to reach populations, disenfranchised groups, and others in the United States [9].

There are several uses and advantages of using photovoice as a methodology. Photovoice research was conducted to determine physical activity perspectives with high school students (*n* = 6) in Oregon [10]. The results showed that inadequate recreational facilities and unsafe streets limited physical activity [10]. Walia and Liepert [11] also used photovoice methodology with 13 to 18-year-olds (*n* = 9) living in Canada. This research found that television and computers were barriers to physical activity [11]. Heidelberger and Smith [12] used photovoice methodology with 9 to 13-year-olds (*n* = 24) who lived

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in low-income households. The results showed that sedentary behaviours, family members, peers, and seasonal constraints contributed to the levels of physical activity the children were engaged in [12]. Photovoice has been used within phenomenological research to study the essence of play for children [13]. The photovoice method can help to uncover an enriched understanding of experiences by producing additional visual and narrative data [13].

Phenomenology

Photovoice is useful as a research method to elicit rich data about the lived experience [14]. Phenomenology is the study of structures of consciousness as experienced from the first-person point of view [15]. In phenomenology, the reality is comprehended through embodied experiences [16]. Through close examination of individual experiences, phenomenological analysts seek to capture the meaning of experience [17]. The truth of the event is subjective to one's perception [16]. Phenomenology shows what range of experiences are possible in the world that people live, how they can be described, and how language can communicate these experiences to others [15, 16].

Using Photovoice in a Phenomenological Methodology

Little is known about how urban, low-income children living in the United States would use photovoice to represent their physical activity habits and their perception of the environment. The photovoice methodology could potentially provide a unique way to understand urban children's physical activity experiences.

Phenomenology as a research methodology is broad [18]. Individuals are involved in this method, and it may include an array of items such as photographs, logbooks, and interviews to express participant views [19]. The combined use of interpretive phenomenological methodology and the photovoice method is an innovative approach to data collection through five methods: (1) individual interviews, (2) group interviews, (3) logbooks written by study participants, (4) photographs taken by study participants with the photographs' titles as provided by each photographer, and (5) the researcher's field notes [14].

Study Purpose

The purpose of this study was to conduct a physical activity photovoice project with adolescent girls in an after-school program. Research objectives were to: (1) explore the girls' perspectives, through photographs and narratives, of their personal strengths and concerns as they related to their involvement in physical activity and (2) explore the girls' perspectives, through photographs and narratives, of community strengths and concerns as it related to their involvement in physical activity. The primary intention of the study was to: (1) gain an understanding of photographs depicting girls' physical activity, through group discussion and a scrapbooking exercise, in order to understand their views of benefits and barriers to physical activity and (2) make recommendations to the after-school program for the girls from their ideas for improving their involvement in physical activity through sharing research findings.

METHODS

Participants

The participants in this project were elementary girls attending an urban after-school program in the Midwestern region of the United States. Recruitment was conducted during the after-school program open house. The project and eligibility requirements were explained to each parent. Participants were a convenience sample of third to fifth-grade girls who participated in the after-school program. This project was approved by the University's Institutional Review Board as non-human subjects research.

Instrumentation

Photovoice was used in this research. Participants took photographs of people, places, and things that impacted their physical activity. A semi-structured focus group was conducted to get participants' reflections on their photographs. This technique is appealing to use for research with children because it can be a creative way to involve children of colour in data collection and gives them a platform to discuss their physical activity experiences [12]. These data can be used to inform and support institutional and community changes to better encourage physical activity among diverse urban populations.

Procedures

The first step of this project was meeting with the after-school program director to determine if it was possible to conduct the project. Before beginning development of the project, approval from the after-school program director was granted. A flyer was

created to explain the project. This flyer was distributed to third, fourth, and fifth-grade girls to inform parents/guardians of the study before the open house. Recruitment was conducted at the after-school program open house on September 25, 2018, before beginning the study. The research project was explained, and a permission form was provided to parents. A space at the bottom of the form was included where parents/guardians could sign, date, and write their child's name to approve their child's participation in the project. Child assent was provided by the children who were enrolled in the project.

The girls met with the author over six weeks in six separate sessions during October and November of 2018. Each session was approximately 45 minutes. In the first session, the researcher met with the participants to explain the project and provide detailed instructions on how to use the camera to document the girls' perceptions of their involvement in physical activity.

Specifically, each girl was asked to take photographs that represented aspects of her daily physical activity. Prompts were given to further explain the types of photographs that the girls should take. The prompts were as follows: (1) What helps you be physically active? (2) What makes it hard to be physically active? (3) How does physical activity help you? (4) Is there physical activity at home? and (5) Is there physical activity in your community? These prompts were written on a sheet of paper as "instructions" that were provided to the girls along with a disposable camera. Participants were also told to ask individuals for their permission to have their photo taken before photographing them [20]. If permission was granted, the girls were instructed to take photos of individuals that did not cause harm or intrude upon their privacy [21]. Additionally, they were instructed not to take photos of people's faces [21]. During this first session, the girls also received cameras and took photos for five days. Once each girl was finished taking photos, they were instructed to turn their cameras into the after-school program director on the sixth day.

Cameras were collected on the sixth day at the end of the after-school program and taken for development. It took a week for the photos to be developed. Two sets of photos were printed for the participants. The first set was used for the girls to look through the photos and reflect on what they photographed before the focus group. The girls were allowed to keep one set of photographs. The other set of photographs were used

as research data along with the girls' reflections about the photographs. Groups with the girls were facilitated by the author.

On the following week, the focus group was conducted at the after-school program during the second session. Focus groups allow people to bring their own perspectives on the topic to contextualize the data [12]. During the 45-minute focus group interview session, the girls were asked to discuss their photographs. A modified version of the SHOWED method was used to analyze the photos they took [22]. The SHOWED method is a series of questions that help the participant explore the photographs and explore their meaning. The following questions were adapted from the SHOWED method to guide reflection: (1) What do you see here? (2) What is really happening? (3) How does the picture relate to our lives? (4) Why does this problem or strength exist? and (5) What can we do about it? [20, 22]. The participants reflected critically on what the images meant to them when thinking about physical activity. They discussed how the images represented their experiences and how those experiences were related to their own physical activity engagement. The girls were encouraged to freely express their perceptions of incorporation of physical activity in their lives. However, the girls did not engage in conversation with each other nor did they provide information to most of the author's follow up questions. As a result, the focus group resembled a group interview -- where the girls individually provided answers to the prompts [23]. Thus, from this point forward the group meeting will be referred to as a group interview. The group interview was audiotaped and transcribed.

After the group interview, the girls developed their scrapbooks during the third, fourth, and fifth weeks. For this summary project, the girls were asked to look at all of their photographs a second time and choose their top photo for each of the five prompts they were given. The chosen photos were used to create a scrapbook. The participants selected photos that they thought were the best representation of their answer to each prompt. Some participants' photos did not develop correctly (e.g., were dark or unclear). If this were the case, girls used drawings to represent their response(s) to the prompts. Drawings, like photos, can be used to provide rich narratives of children's lived experiences [24]. The girls wrote information about why they selected the photograph or about their drawing for prompts. The author also took notes as the girls worked on their scrapbooks to record their conversations. After data

were coded and results were summarized, the author provided the director of the after-school program with the results and implications of the study to provide information to guide program direction.

Data Analyses

Qualitative analyses were conducted throughout the research process. Grounded Theory was implemented when coding the girls' answers to allow themes to emerge from the data [25]. Constant comparison was the method used to analyze the data provided by the girls [26]. The first type of data to be coded was the transcript of the group interview. The second type of data was data in the girls' scrapbooks. Thirdly, the author's "observation" notes were analyzed for a summary of the girls' discussion of physical activity during the scrapbooking sessions. Two coders, the first author and an undergraduate coder, analyzed data from all three sources. Additionally, a professor, who was advising on this dissertation, also coded data from the focus group and scrapbooks. This allowed for triangulation to occur (e.g., an additional investigator reviewed evidence; [27], with a third coder to assist in verifying themes in the data from the group interview and scrapbooks. Moreover, the constant comparative method was used to review sources of information from the three types of data, providing another method of triangulation, as multiple sources of data regarding the phenomenon of interest (girls' perceptions of physical activity) were used to understand the girls' views [27, 26].

There were several stages of coding the group interview data. First, the author and the other two coders individually coded transcripts using an open coding process with memoing to highlight key themes in the data. The coders then met to compare the themes they had discovered and their memoing. During this meeting, they determined themes in the data and reconciled discrepancies. A second meeting was held to verify and ensure that no additional themes should be presented. At the second meeting, the author and coders developed a table for the themes and verified results. Quotes that represented key themes were agreed upon by coders. NVivo 12 software was planned for use in analyses of the transcripts, but the group interview conversation was not extensive. So, it was decided that the qualitative software program was not needed.

There were similar stages for reviewing the girls' scrapbooks. First, the author and the other two coders individually reviewed the photographs and writing in the scrapbooks (reasons for selecting the photographs) to determine themes in the data for each prompt. After the independent coding stage, the coders met to determine the main themes in the data and resolve disagreements. This process was repeated until consensus was reached for themes representing each of the five prompts in the scrapbooks. Next, the author and coders developed tables and written results to represent key themes and representative photographs and statements for each question.

Additionally, notes taken by the author during the scrapbooking sessions were analyzed by the author and the undergraduate coder. First, the two coders reviewed the notes individually to determine the themes in the data. Memoing and an open coding process were used to review the notes [26]. After the independent review stage, the coder and the author met to determine main themes in the notes and reconcile discrepancies in their coding processes. The author was then able to establish a summary about the girls' overall attitudes, expressions, and direct quotes about physical activity (for conversation occurring during the scrapbook development). In a final meeting, the undergraduate coder reviewed the summary developed by this author to ensure that the description was reflective of her impressions of the data.

RESULTS

Fourteen girls (of 25 girls in the after-school program) agreed to participate in the project; all of the girls were African American. Twelve girls (85%) were present on the day of the focus group. Reasons, why some girls were not present on the day of the project, included: (1) parent picked a girl up early from the after-school program and (2) one girl did not attend school on the day of the group interview.

Fourteen girls (100%) completed the scrapbooks. After analysis, it was determined that one particular participants' data should be removed from the information presented in the results. The coders were unable to understand her photos and comments.

Group Interview

Several themes were identified for each of the questions or prompts (see Table **1**).

The first prompt or question required the girls to discuss their photos of what helped them be physically

Table 1:   Themes from Focus Group Data

Prompt	Themes	Example Quotes
What helps you be physically active?	Sports	"Golf"
	Exercise	"Walking dog" "Running"
	Social games	"Just dance" "Playing with friends" "Tag" "Kickball"
What makes it hard to be physically active?	Distractions	"Playing on the computer." "Watching tv." "Cleaning my room."
	Outside Conditions	"Being cold outside" "Being dark outside"
	Personal Choices	"Being Lazy" "Being up late" "Doing nothing around the house."
	Parental Rules	"Mom won't let child go outside." "Dad won't let child go outside."
How does physical activity help you?	Personal Benefits	"Helps me have more energy." "Helps me be healthy."
	Social Benefits	"Helps me play with siblings." "Helps me playing with friends." "Helps me help my mom with house chores."
Is there physical activity at home?	Play/Exercise	"Hide and go seek" "Yoga/Stretching" "Playing outside"
	Neighborhood	"I don't play outside because my community is bad."
	Sedentary Activity/No physical activity	"Coloring" "I play cards with my brother." "There is no physical activity at home."
Is there physical activity in your community?	School	"The school playground" "The school gym"
	No Opportunity	"There are no playgrounds near the house." "I don't have physical activity in my community."

Note. Although only one girl endorsed this theme, coders and this author believed it was salient.

active. Coders identified three themes for the first prompt: (1) sports, (2) exercise, and (3) social games. In terms of the first theme, only one girl mentioned a sport as an activity that helped her be physically active. The girl cited "Golf" as an activity that helped her be physically active. The exercise was the second theme. Some girls cited, "Walking the dog" and "Running" as activities that motivated them to be physically active. The last theme for this prompt was social games. The girls mentioned activities such as, "Just Dance," "Playing with friends," "Tag," and "Kickball" as activities that encouraged them to participate in physical activity.

The second prompt or question in the focus group was for the girls to discuss what makes it hard to be physically active and they could present their photographs to support their answers. Four themes addressing barriers to physical activity were established: (1) distraction, (2) outside conditions, (3) personal choices, and (4) parental rules. The comments cited by the girls for distractions were "Playing on the computer," "Watching tv," and "Cleaning my room." Outside conditions that prevented the girls from being physically active included weather conditions ("Being cold outside") and lack of sunshine ("Being dark outside"). Several girls cited lack of

energy as the reasoning behind the challenge to be physically active ("Being lazy"). This was presented as personal choices. Parental rules were the final theme for barriers for the second prompt. This theme refers to the parents not allowing the girls to go outside and play. This rule makes it hard for girls to engage in physical activity.

The third prompt or question asked the girls to explain how being physically active can benefit them. Two themes that emerged from the data: (1) personal benefits and (2) social benefits. Overall, the girls cited more social benefits of physical activity than personal benefits. Personal benefits of being physically active included having more energy and being healthy. Social benefits provided by the girls included, but is not limited to, playing with friends and playing with siblings.

The fourth prompt or question asked the girls about physical activity at home. Three themes were established to explain the girls' responses: (1) play/exercise, (2) neighbourhood, and (3) sedentary activities. Overall, the girls had a very minimal conversation regarding physical activity at home. Regarding play/exercise, "Hide and go seek" and "Playing outside" were some comments made about types of physical activity at home. Some girls mentioned having a bad community as a barrier to engaging in little physical activity at home (e.g., they can't go outside to play). Although they did not provide detail for their reasons during the group interview, the author's notes support that these comments related to the girls' inability to go outside because of crime in the community. Colouring and playing cards were other examples of activities that the girls engaged in at home. These activities were categorized under the sedentary activity/no physical activity theme.

The final prompt required girls to provide an explanation of physical activities in the community. There were two themes for this prompt: (1) school and (2) no opportunity. A majority of the girls described the school playground or school gym as the only physical activity opportunity in their community. Others mentioned that there is no or limited opportunity for physical engagement besides activities offered during the after-school program. Thus, a lack of opportunity for being active outside of school spaces was a barrier to girls engaging in physical activity.

Scrapbooks

The scrapbooks were the second type of data that the coders analyzed. The scrapbook provided a visual representation and explanation of the chosen photo used to answer each question. The scrapbooks gave the girls another opportunity to reiterate and expound on their previously mentioned comments, using the same prompts that the moderator reviewed during the group interview. Despite some redundancy with results for the group interview data, it was important to show the additional information provided by the girls in their scrapbooks. Table **2** presents themes and representative photos and comments from the scrapbooks.

The first prompt required children to present information on how physical activity helps you. Coders identified five themes for this prompt: (1) dance/gymnastics, (2) family, (3) outdoor activities/sports, (4) pets, and (5) traditional equipment (see Table **2**). For the dance/gymnastics theme, children presented photos of Zumba class, dancing, and step in their scrapbooks. Sample quotes representative of the examples written by the girls were: (1) "We dance because it is fun" (picture of girls in a dance class), (2) "I chose this because dancing is good for me and I like dancing" (picture of a girls dancing), and (3) "I choose step because this helps me be physically active" (picture of girls in a step class). Family members were discussed as persons who encouraged physical activity. One girl mentioned walking to and from school regularly with her mother, under this first prompt. This is a way she engaged in physical activity on most days. Sports and outdoor activities, such as golf, were photographed to explain a physical activity that promotes excitement. Being happy about specific activities encouraged the girls to be physically active. Engaging in activities with pets was one of the most popular ways that girls were physically active. Several girls had responsibilities to walk and play with their dog or cat. One girl provided a photograph of a treadmill at home because she runs on it for physical activity. The treadmill was the only form of traditional equipment shown for this prompt.

The second prompt in the scrapbook required girls to comment on barriers to being physically active. Coders identified the themes for the photos and representative quotes as, (1) electronics, (2) responsibilities, (3) lack of motivation, (4) social/extracurricular activities, and (5) environment. Electronics accounted for the majority of the responses to the challenges of being physically active. Girls commonly photographed watching television ("I like watching tv more than going outside"). Responsibilities, such as chores around the house, were barriers to engaging in physical activity. Some girls captured the lack of motivation to be

Table 2: Themes, Representative Photos, and Quotes from the Girls' Scrapbooks

Prompt	Theme	Example Photos/Drawings	Example Quotes
What helps you be physically active?	Dance/Gymnastics	Zumba Dancing Step Flips	"I am doing Zumba." "We dance because it is fun." "I choose this because this help me be physically active." "I chose this because dancing is good for me and I really like dancing." "I chose this picture because I like gymnastics."
	Family	Daughter and mom	"We were walking to school."
	Outdoor Activities/ Sport	Bike Golf bag/clubs Shoes	"I chose this because golf is my favorite activity and sport." "I chose my shoes because they help me be physical active."
	Pets	Girl and dog Girl playing with cat Girl walking her dog	"I choose this picture because I like to walk my dog a lot." "I pick this because I like to play with my cat." "I choose this photo because I like walking my dog."
	Traditional equipment	Treadmill	"I chose this photo because running makes me active."
What makes it hard to be physical active?	Electronics	Watching TV Television Computer	"I choose this picture because sometimes I have nothing to do and I like watching tv." "I chose this because I like watching tv more than going outside." "Because I like to play on the computer." "I like watching tv. I do not like to get up in the morning for school because I watch tv late." "I chose this photo because I like watching Eley my favorite show." "I chose this because when watching tv I don't do anything."
	Responsibilities	Cleaning Room	"I chose this because cleaning my room is really hard."
	Lack of motivation	Girl lying in bed. Sitting down at home.	"I chose this photo because me sleeping all day makes me lazy." "I like laying down with my brother."
	Social/extracurricular activities	Girls Hanging out together Music Class Girls Talking	"Acting funny." "I chose this photo because it makes it hard to be physically active." "When I am with my friends, it makes it hard to be physically active."
	Environment	Dark outside	"It was the best thing because it is getting dark early."
How does physical activity help you?	Bonding /social	Grocery store with mom Laundry mat with mom Games with siblings Playing with friends Playing with siblings	"We were at Rogrens. Me and mom walked to the corner store for snacks." "I chose this picture because we walk to the laundry mat sometimes." "My friends help me be active." "I chose this photo because my baby sister likes to play with me everyday."
	Happiness/Enjoyment	Gymnastics Soccer Dance	"I picked this picture because like gymnastics." "I choose this photo because I love playing my favorite sport soccer." "Because I like to dance." "I choose this because it makes me happy."
	Energized	Zumba	"It helps me feel energized and feel free."
	Breathing	Chest/heart	"I chose this because physical activity helps me with breathing."

(Table 2). Continued.

Prompt	Theme	Example Photos/Drawings	Example Quotes
Is there physical activity at home?	Outdoor activities	Tag Front yard Walking Basketball	"I play tag with my friend. I chose this because it is fun to do." "Because I can play outside." "I chose this because I am walking home." "I choose this photo because I love playing with my siblings." "I chose this photo because me and my brother walk to and from school."
	Indoor activities	Yoga/stretching Hide and Seek	"My physical action at home is yoga." "This is me and my sis playing hide and seek."
	No physical activity	Television Cards Coloring Drawing sitting in a chair	"Playing cards with my brother. " "I love to watch tv." "Coloring helps me have fun."
	Other (not enough explanation)	Playground Side walk/business	"I choose this because I like hanging upside down."
Is there physical activity in your community?	Outdoor Community activities	School Playground Park	"Picture of playground." "This is my park at my school. I chose this because it's the only park in my community." "I like playing in the park."
	Indoor Community activities	YMCA Gym Zumba	"I chose this photo because I like swimming at the YMCA." "I chose this because it is a fun community activity." "I like to play basketball because it is fun."
	Fun activities with friends	Being with friends	"I chose this because I like going outside." "The physical activity in my community is being with friends at school. "

Note. Two girls did not respond to prompt 5: Is there physical activity in your community?

physically active by taking photos while laying down in the bed or sitting down on the couch. Photos of girls in a music class was a social/extracurricular activity that they also photographed, although this did not involve being physically active. The lack of lighting outside and weather conditions were mentioned as environmental problems. These environmental issues prevented girls from going outside to engage in physical activity.

The third prompt asked the girls how physical activity can help them. The themes included: (1) bonding/social, (2) happiness/enjoyment, (3) energized, and (4) breathing (see Table **2**). It is noteworthy that many of the girls photographed bonding (e.g., walking with parent) and happiness (e.g., playing sports with friends) as ways that physical activity helped them. Coders discussed that the data suggested the girls enjoyed bonding activities. One girl shared a photograph of a Zumba class and she discussed feeling energized by the class. Being energized motivates one to not be lazy. A heart/chest was photographed to explain that being physically active helps with having a healthy heart and breathing.

Some photographs were difficult to interpret because the girls did not provide enough information about why they were selected. For example, some girls responded to the playground, chores, gym, and board games as ways physical activity can help them. Some explanations were "I chose this because it shows me and my friends playing" or "I liked to help my sister do chores in the house." It is possible that a few of the girls did not completely understand the prompt. It is also possible that the coders did not understand the girls' explanations, because the girls provided scant information about why they selected their photos.

The fourth prompt inquired about the physical activity options at home. The main themes for this prompt are, (1) outdoor activities, (2) indoor activities, and (3) no physical activity. The girls photographed outdoor activities, playing in the front yard, walking home, and playing basketball. Some of the girls photographed and provided comments about sedentary activities, such as watching television, playing cards, and colouring. These responses provided insight into activities and barriers to physical activity in the home setting.

The fifth prompt inquired about physical activity in the girls' community. The main themes for the prompt were: (1) outdoor community activities, (2) indoor community activities, and (3) fun activities with friends (see Table **2**). The majority of the outdoor activities photographed by the girls in the community occurred on the school playground. Many noted that there are not many options for engaging in physical activity in their community. Indoor activities included recreational activities and sports in the school gym and at the local YMCA. The school gym and school playground were locations where the girls engaged in physical activity with their friends. Few activities in the community were outside of the school (e.g., at home or in the neighbourhood). Additionally, activities with friends mostly occurred at the school.

As stated previously, there was one girl whose responses were removed from the results presented in Table **2** (e.g., unclear to the coders or participant did not understand the project). She photographed and mentioned splits for every prompt in the scrapbook. Additionally, the photographs were taken on the same day, in the same outfit. This is a unique situation that is specific to the participant.

Notes Recorded by the Author

Overall, the girls enjoyed writing explanations about their physical activity photos and decorating their scrapbooks. They made comments about not having physical activity at home. Some girls stated that they did not go outside because of reasons like: (1) "There is no yard space outside of my home," (2) "There are no playgrounds nearby," and (3) "There are no community centres besides the school."

One girl started a conversation about crime in the community. This girl stated, "One time this guy in my neighbourhood was trying to give kids candy that was harmful." She went on to explain that this was why her parents do not let her go outside. This triggered a relatable conversation, allowing other girls to share different stories about people getting shot or hearing gunshots in their neighbourhood. They talked about the crimes as if they were normal, reoccurring negative actions that happened in their community. Having a lack of community activities outside of the school and not being able to go outside were reasons the girls spent more time watching television, taking naps, and playing on the computer instead of being physically active.

SUMMARY OF RESULTS

The data gathered from the group interview, scrapbooks, and notes are consistent with each other. The author had several sources of data to ensure she captured the girls' reflections (i.e., having several opportunities to understand viewpoints about phenomena of interest is a source of data triangulation, [27]). The girls' perceptions of physical activity were able to gradually expand over the course of the different methods. The scrapbooking activity returned the most detailed data in this author's opinion. However, the group interview and author's notes recorded during scrapbooking also provided data to help understand the girls' perspectives.

The girls expressed their perceptions of physical activity based on the prompts. With respect to the first prompt (What helps you be physically active?), the girls explained various persons, places, or things, (e.g., friends, sport, pets) that encouraged them to be physically active. The second prompt (What makes it hard to be physically active?) revealed that the girls' electronics (e.g., computer), responsibilities (e.g., cleaning), lack of motivation (e.g., lazy), extracurricular activities (e.g., music), and the environment (e.g., weather) were explanations as to why physical activity was challenging to participate in. The data for the remaining prompts provided detailed explanation of the strengths and barriers to physical activity. For prompt three (How does physical activity help you?), the girls described opportunities to bond, become energized, have breathing "improvements", and experience happiness. As mentioned for the fourth prompt, the girls photographed and discussed sedentary activities, such as watching television or coloring, at home. The girls mentioned limited access to going outside for physical activity because of safety concerns in the neighborhood. The author's notes further revealed that the parents do not allow the girls to go outside because of crime in the community. Furthermore, the girls' responses for prompt five indicated that there is limited physical activity options for physical activity in the community. The majority of the physical activity photographed and discussed by the girls was at the school playground and school gym. In summary, this combined information gathered from various methods highlights the physical activity experiences of urban elementary age girls.

DISCUSSION

This study explored elementary-aged girls' perspectives of benefits and barriers to physical activity.

The photovoice method allowed this author to gain information about the girls' perspectives [14]. The data provided informs leaders of the girls' after-school program and their parents. The most common barrier reported and photographed by girls was engaging in sedentary activities (e.g., television, computer, or art). Families and peers had an influence on the girls' involvement in physical activity (e.g. walking to school with a parent or enjoying physical activity with friends). Happiness related to being with others encouraged the girls to engage in physical activity. Heidelberger and Smith [12] also proposed that social support and being able to engage in activities with others can improve levels of physical activity.

The girls mostly cited the after-school program as the setting where opportunities for physical activity occurred. The home environment had some physical activity options but, some girls could not engage in outside play because of crime and lack of safety in their neighbourhoods. Community-based opportunities for physical activity were limited or nonexistent according to the girls. The results of this study stress the need to incorporate more physical activity opportunities for girls living in low-income urban communities and also create safer environments. Moreover, results are consistent with research showing that adolescents in urban areas may have decreased opportunities for available spaces to exercise [4]. On a positive note, the girls enjoyed dance and exercising with family. Hence, making physical activity a "family affair" may encourage girls to be physically active. The girls in the study liked gymnastics and Zumba. Teaching family members to use Zumba at home or providing the girls and their family with Zumba disks to play on the television or computer may provide them with a way to exercise indoors.

Barriers to Physical Activity

Most common barriers to personal involvement in physical activity reported and photographed by the girls were using technology (e.g., computer), being involved in extracurricular activities (e.g., music class), personal choices (e.g., laziness), and having many chores at home (e.g., cleaning room). Interestingly, Walia and Liepert [11] also reported that the use of electronics was a barrier to engaging in activity. Additionally, the girls made comments about not being able to go outside because of safety problems that occur in their community. Parents may be supportive of girls engaging in sedentary activities, such as watching television, because it provides a safe form of entertainment that is indoors [28]. Previous research has also found

that safety is a concern for urban populations [10]. Developing more indoor activities involving play and movement, such as dance for girls, can possibly increase their involvement in physical activity.

Strengths of Physical Activity

As mentioned, girls' responses for several prompts (e.g., one and three) indicated that families and peers had a strong influence on activities both inside and outside the household. Activities that involve family and friends were beneficial ways for the girls to be physically active. Thus, social support and involvement may be a benefit to engaging in activity that promotes exercise [12]. Additionally, characteristics of physical activity that encouraged the girls to participate in the exercise included health benefits (e.g., energized) and having positive feelings (e.g., happiness) while exercising. Parents also provided some opportunities for children to be involved in physical activity. Walking to the store or laundromat was a common activity with parents. Similar to the findings of this study, Heidelberger and Smith [12] found that walking to school, grocery stores, or the laundromat were ways that physical activity requirements were met within a low-income community. Research has found that peers influenced children's activity by being involved in activities, forming or maintaining friendships, and creating social norms [26]. The majority of photos that captured group and peer activities were located at the after-school program, and it may have been the case that the girls were more active at the after-school program than at home. Due to limited opportunities at home, after-school programs may offer girls residing in low-income urban neighbourhoods the opportunity for recreation and engagement in physical activity.

Home and Community Influences on Physical Activity

As previously stated, physical activity could be limited in the home and in the community. Some physical activity included outdoor activities (e.g., tag) and indoor activities (e.g., hide and seek). These games require others to play. Teaching the girls some fun solitary physical activities (e.g., dance, stretching, yoga) may give them alternatives for physical activity when there are not peers to interact with. Alternatively, watching television, playing cards, and colouring were some more frequently mentioned activities. These are sedentary in nature. Perhaps recreation leaders and parents can encourage girls to take movement breaks, where they dance and stretch so they will be more active. Other games, such as Just Dance, that require

more physical movement are available. However, not many of these games were photographed or discussed by the girls.

The "community" had limited options for physical activity. The girls mainly relied on the school gym and school playground for physical activity in the community. The girls engaged in structured (e.g., Zumba) and unstructured activities (e.g., play) at the school gym or playground. A few girls mentioned having a park and YMCA in their community, and these girls did engage in physical activity in these settings. Similar to the results of this study, Hamilton *et al.* [9] also found that the schools had more physical activity opportunities than what is offered in the community.

Limitations

Although the participants in this project provided comparable information to previous studies, the sample size was small. Some may believe that one participant's responses (e.g., one girl for sport, with golf) did not justify a theme being created. In contrast, one of the girls needed to be involved in sport and coders unanimously agreed that this could be a theme. Also, the prompts used by this author may have limited the girls' abilities to provide feedback, because in responding to the specific questions they could not provide critical information. However, the author did capture their conversations in her notes, providing additional information to add to her findings. Some of the girls may not have felt comfortable writing down their feelings about limitations to activity in their scrapbooks. They may have provided answers they believed were desirable in their scrapbooks. Furthermore, some unclear photos may have occurred because children lacked experience using disposable cameras. Despite the small sample and other limitations, this author believes the results of this study can contribute by providing initial information that can be used for future research.

Implications for Health Educators

Health educators can use the information in this study to better understand urban elementary-aged girls' perceptions of physical activity. One role for health educators is to reach out to recreation staff and encourage them to find ways to create opportunities to improve access to physical activity in after-school settings. Use of group games and activities are encouraged for the after-school program since the girls commonly cited physical activities with friends were

enjoyable. Meeting with the after-school program director to share results assisted in advocacy efforts to add more exercise activities. The author accomplished her goal of sharing information on a programmatic basis, by providing results to the program director and reviewing options for improving activities at the program with her. A broader issue will be encouraging the development of safe spaces to play in inner cities. Perhaps this can be solved by advocacy and supporting policy changes. Offering a variety of structured and unstructured activities that can be done at home and in the community are potential ways to increase physical activity engagement among girls. Other ways to increase physical activity among this population are to create more safe places to play by increasing green space in urban areas, implementing physical activity programs at community centres, and involving other organizations in the community (e.g., church) that can help with the promotion of physical activity for girls.

There are several recommendations that health educators can provide to parents and staff at the after-school program. For example, health educators can encourage parents to teach their girls to take breaks from sedentary activities to do physical activity (e.g., Just Dance, Zumba, mimic YouTube dance videos). The girls enjoyed activities involving bonding. Parents can bond with the girls while engaging in fun activities, such as walking, running, tennis, or yoga. At the after-school program level, staff can purchase traditional play equipment (e.g. balls, jump ropes, hula hoops) and encourage the girls to engage in social games. The after-school program staff can also encourage the girls to engage in physical activity when they are sitting and talking with each other, such as playing outside (e.g., tag, kickball), or playing in the gymnasium (e.g., basketball, volleyball).

CONCLUSION

This research describes perceptions of physical activity by elementary school-aged girls residing in an urban, low-income area, through photography, group interview, and observational techniques. The level of physical activity was influenced by what was available in their community, what was offered at their after-school program, what activities parents engaged in, and by safety in their neighbourhoods. The information gained from this research can most immediately inform the after-school program of ways to encourage physical activity and implement more physical activity options for girls daily. Photovoice may be effective to conduct needs assessments or formative research to inform

interventions to increase physical activity. For example, cameras can be provided to girls to take photos of activities they do with their families and these photos could be used to create programs in the community to encourage family activity. Girls could also take photos of their favourite activities and this information could be used to create organized activities that provide an opportunity to engage in physical activities year-round. Future research should explore the types of structured and unstructured physical activities girls enjoy so that more gender-sensitive programs and activities can be developed. In the future, examining involvement in urban and rural areas and considering the impact of poverty and available activities on girls' perceptions will make further contributions to knowledge about physical activity for girls.

ACKNOWLEDGEMENTS

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