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ORIGINAL RESEARCH

Perceived facilitators and barriers to physical activity for rural youth: an exploratory study using photovoice

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ABSTRACT

Introduction: Decreasing physical activity levels, particularly among youth, continue to be a prominent health concern in Canada, and youth living in rural areas may encounter unique facilitators and barriers to physical activity. In addition, current research suggests that overweight and obesity rates are higher for youth in some rural areas compared with urban areas. The goal of this study was to identify the perceived facilitators and barriers to physical activity for a selected sample of rural youth at a rural secondary school in south-western Ontario and examine how rural barriers and facilitators affect rural youth physical activity. Current Canadian literature addresses rural youth physical activity in a very limited fashion. Thus, the goal of this research was to provide important insights into physical activity for rural youth.

Method: Nine participants aged 13 to 18 years completed the study using the photovoice methodology and method. Photovoice is a relatively new method for health research that adopts an innovative approach whereby participants use cameras to document their perceived health realities. In photovoice the images and words from the life experiences of participants create the basis for discussion. Participants had 2 weeks to take photographs. After 2 weeks the cameras and logbooks were retrieved, the photographs were developed, and a one-on-one interview was held with each participant. The interviews focused on participants' explanations of their photographs and their relevance to physical activity.

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Results: Analysis of the pictorial, narrative, and logbook data provided by participants revealed 12 themes as facilitators and barriers to physical activity. Some of the themes relate to facilitators (eg early exposure to activities), some to barriers (eg lack of opportunities close to home), and some themes represent both a facilitator and a barrier (eg competitiveness, family support, and peer interests). The findings of this study may assist community stakeholders, school officials, and parents to better support the physical activity needs of rural youth.

Conclusions: Physical activity rates continue to decline and to be a major health concern for Canadian youth. Thus, it is becoming increasingly important to understand physical activity from the perspective of rural youth. Implications of this information for rural communities, rural schools, and rural residents are significant. These implications and recommendations may help facilitate increased participation in physical activity for rural youth by providing them, and their families and communities, with enhanced opportunities and resources to engage in physical activity. Further research is clearly indicated.

Key words: Canada, exercise, photovoice, physical activity, youth.

Introduction

Decreasing physical activity levels, particularly among youth, continue to be a prominent health concern in Canada today. In fact, 'physical activity levels have reached an all time low among Canadian teens, and are declining among young people in general'[1]. In Canada's annual Report Card on Physical Activity for Children and Youth[2] Canada received a grade of 'F' for physical activity levels among youth.

The number of overweight and obese youth in Canada has increased dramatically over the past 30 years. Approximately 30 years ago in Canada the overweight (BMI ≥25) and obesity (BMI ≥30) rates for 2 to 17 year-olds were 12% and 3%, respectively[3]. As of 2004, the overweight and obesity rates for 2 to 17 year-olds had risen to 18% and 8%, respectively, for an estimated total of 1.6 million individuals[3]. Current research suggests that overweight and obesity rates are higher for youth in some rural areas compared with urban areas[4]. Being overweight or obese in childhood can lead to numerous health conditions, the impact of many occurring in adulthood, such as cardiovascular disease, diabetes, and hypertension[5].

In addition to the numerous risks of being overweight or obese, physical inactivity may cause other health effects. Emotional and behavioural problems have all been directly linked to physical inactivity in children and youth[2]. Long-term health effects resulting from physical inactivity include, but are not limited to, premature death, heart disease, adult onset-diabetes, osteoporosis, stroke, and depression. Conversely, physical activity has been shown to contribute positively to health, fitness, self-esteem, weight control, muscle and bone strength, and to stress reduction[6].

The purposes of the present research were to identify activities in which rural youth in a secondary school participated, determine facilitators and barriers to physical activity for these rural youth, and examine how rural barriers and facilitators affect rural youths' physical activity. This research could challenge the predominant assumption that rural areas provide a natural, pure and unblemished environment where youth have an abundance of opportunities to be physically active[7]. In addition, it is important to note that there are numerous factors including, but not limited to, genetics, unhealthy diet, and poor eating habits[8], that could play a role in becoming overweight or obese. In this study the aspect of physical activity was explored within the rural context because low physical activity rates continue to be a major concern among Canadian youth[2], and because youth living in rural areas may encounter unique facilitators and barriers to physical activity[4]. In addition, current Canadian literature addresses rural youth physical activity in a very limited fashion. Thus, the goal of

this research was to provide important insights into physical activity for rural youth.

Methods

In this study, youth were classified as individuals aged 13 to 18 years. This age group was selected because it included students from all grades at the secondary school where the research was conducted and, thus, would be likely to yield a diverse group of participants with a wide range of experience of physical activity in the school and community. 'Rural' in this study is defined as an area where the population density is below 150 inhabitants per km[29]. In this research, students attending the school were from a rural town and a number of rural municipalities surrounding the rural town in which the population density of the area is approximately 15 per km^2. The research was conducted in a secondary school in south-western Ontario. Approximately 500 students attend the school which offers grades 9–12. The secondary school was selected based on its location in a rural community and its proximity to the researchers, making it feasible to drive to the school frequently to conduct effective research. The school is located in a municipality with a population of 5349 residents[10].

This research was conducted using the photovoice methodology. Photovoice, a relatively new approach to research within the health sciences, adopts an innovative participatory action research approach whereby participants use cameras to document their perceived health realities[11] and to discuss their experiences and perceived social and political realities[12]. Participants reflect on the photographs they have taken which helps them to understand, express, and explain issues within their community using powerful images and stories[13]. In this research, the study of youth perspectives regarding the rural setting was vital in understanding factors in the rural environment that affect their physical activity. It is important to understand the experiences of rural youth from their perspective because little is known about the experiences and behaviours of rural youth. Photovoice has been used successfully to capture the unique youth perspective[14,15]. This may be the first study in Canada using photovoice to examine physical activity with rural youth.

Prior to recruitment and data collection, ethical approval was obtained from the Office of Research Ethics at the University of Western Ontario and the local district school board. Inclusion criteria for the sample were youth aged 13 to 18 years who had lived in this rural community for at least 2 years, and who spoke and wrote English. Both males and females were included in the study. After participants enrolled in the study and provided consent, they attended a camera orientation session. During this half-hour session the nature of the research was discussed in greater detail, and participants were provided with a camera, received instructions on picture taking, and were provided with a logbook to comment on and record the title their pictures. After 2 weeks the cameras and logbooks were retrieved, the photographs were developed, and a one-on-one interview was held with each participant. Two weeks was considered an appropriate amount of time to ensure participants had sufficient time to take photographs; this length of time has also been used in previous research studies using photovoice[16]. The interviews focused on participants' explanations of their photographs and their relevance to physical activity. Traditionally, when using the photovoice method, focus groups are held with participants after picture-taking, and participants are asked to discuss two photographs each[17]. However, in this study one-on-one interviews were used to provide more time for individual discussion.

To begin the analysis, the logbook and audio recordings of the camera orientation session and post-picture taking interview were transcribed verbatim. Data were analyzed using three methods. First, during the one-on-one interview, the participants analyzed data by selecting, contextualizing, and codifying their photographs[18]. Second, line-by-line content analysis[19] of interview and logbook transcripts was conducted to generate codes that identify key words and phrases related to facilitators and barriers to physical activity for rural youth. Third, photographs were analyzed using a three-part process[20]. The first stage of analysis was 'preview', where photographs were viewed alongside their narratives to

understand the participants' intended representations and to situate the participant within the context of his/her photograph[20]. The second stage of analysis was 'review' to assess the congruency between the photographs and narratives. The final stage was 'compare and contrast' where themes were developed that were reflected in the entire photograph collection[20]. For example, many participants (n=8) took photographs of their computer as a barrier to physical activity; thus, the computer was identified as a barrier across the complete photograph collection.

Results

Nine students, 5 males and 4 females, participated in the study. The mean age of participants was approximately 16 years with an age range of 14–18 years; all participants resided in rural towns in rural municipalities surrounding the school. Analysis of the pictorial, narrative, and logbook data provided by these participants resulted in 12 themes emerging as facilitators and barriers to physical activity: three themes represented facilitators, four themes represented barriers, and five themes indicate both facilitators and barriers (Fig1). Participants engaged in a number of organized activities in their rural community (soccer, basketball, badminton, volleyball, track and field, and football) as well as organized activities outside of their rural community (baseball, hockey, and cricket). Participants also engaged in many non-organized activities in their community (biking, walking, swimming, running, soccer, basketball, rollerblading, tennis, tobogganing, ice skating) and non-organized activities outside their community (skiing, snowboarding, wind surfing, and tubing).

Facilitators

Enjoyment of activity: An important aspect of generating interest, or maintaining interest, in physical activity for participants was their enjoyment in the activity. Stress relief was one reason physical activity could be enjoyable. Rob, an 18 year-old grade 12 student who was graduating from the high school and leaving for university in the fall, ran on a treadmill on a daily basis and noted, 'You're running off a lot of stress'.

Jen, a competitive volleyball player, explained that being skilled at an activity can also increase enjoyment and the frequency of participation when she noted, 'People always find if they're good at something they're going to play it'. For many participants (n=7), enjoyment facilitated their desire to engage in physical activity on a regular basis. However, some participants found it difficult to engage in an activity they enjoyed because of limited opportunities in their rural area. For many participants this meant engaging in an activity in their backyard or another area near their home, or having to travel to larger urban areas to access their preferred activity.

Access to facilities and spaces: Having access to facilities and green spaces was helpful for participants to be physically active. The majority of opportunities for physical activity were located within the main town in the rural area as Eric, an active grade 10 student, noted, 'They have the arena there; they have tennis courts, baseball diamonds, soccer fields, and stuff like that. So there are lots of places for people to get out and play some sports and get active'. While facilities were available in the main town, all participants resided outside of the main town in smaller communities, where there were few facilities. Accessing facilities in town was difficult for those who did not have access to transportation.

John, a 14 year-old student, had a large backyard where he could be physically active (Fig2): 'When I just play soccer with friends or my mom or something it's just in my yard because it's big enough'. Having backyard space for physical activity was useful for a number of participants because there were not any recreational facilities close to their homes, and they were unable to reach facilities for physical activity.

Early exposure to activities: Participants in this study who were exposed to a sport at an early age (n=8) tended to continue to play the sport through high school and planned on playing the sport for the rest of their life. As Eric explained, 'They [parents] just kind of whipped out a bat one day when we were little and then we've just been playing ever since'. Brad, an 18 year-old grade 12 student, when asked what the biggest influence on physical activity is, indicated that 'it's basically the opportunities you're given as a kid'.

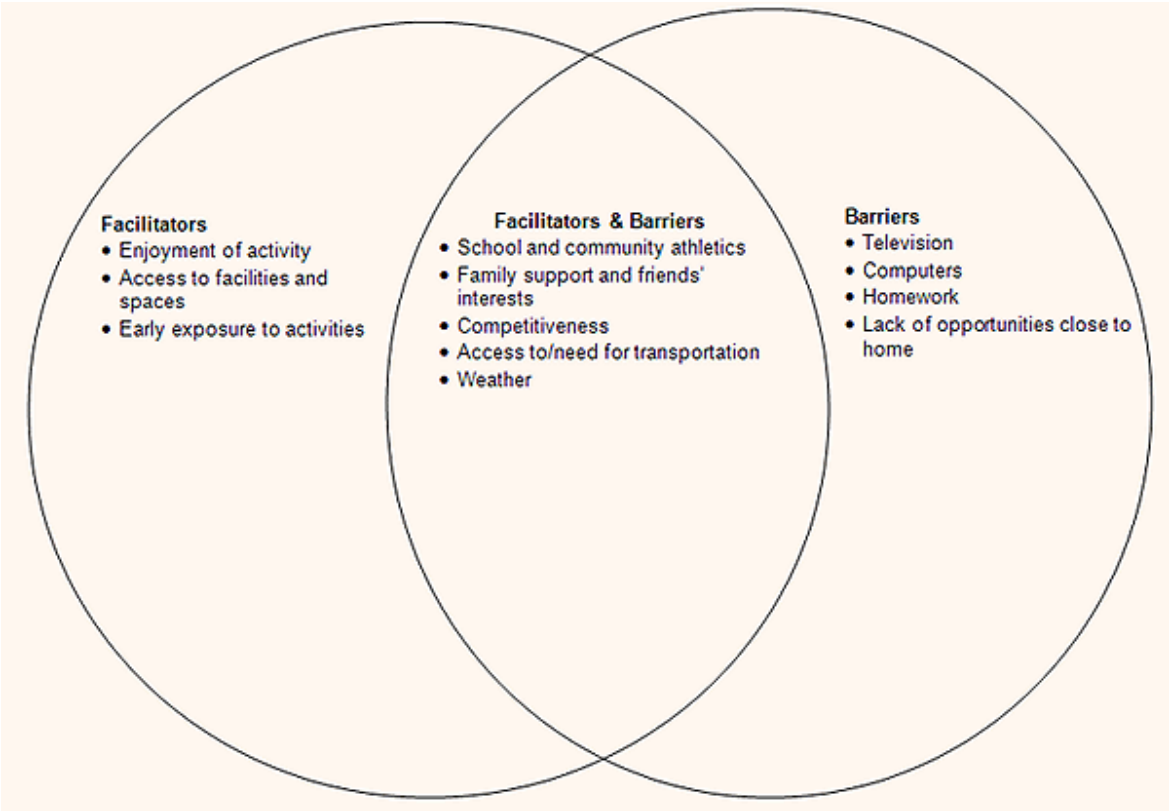

Figure 1: Perceived facilitators and barriers to physical activity for rural youth

Figure 2: Photograph 1 – Big backyard

Many participants found it beneficial to be exposed to a number of different activities at a young age so that they could choose the activity they enjoyed the most and continue to engage in that activity as they grew older. However, early exposure was difficult for some participants because of the lack of athletic opportunities in the rural community, and the inability of a rural school to expose students to a wide range of activities. Household chores that participants began at a young age (such as mowing the lawn, shovelling snow, feeding and brushing horses) were also discussed as a source of physical activity.

Barriers

Television: Television was an important barrier to physical activity for the majority of participants (n=7). Eric, a 15 year old student, claimed that on a daily basis he watched 'probably like 3 hours or 4 hours' of television. Tami, who lived with her older brother and parents, indicated she watched television because 'sometimes I feel like TV is more entertaining'. In many cases the convenience of television at home superseded the motivation to be active. For example Alice's access to video games limited her physical activity: 'Instead of being more active today, I played PS3. I chose this over doing something active because I was doing my homework and the closest/funnest thing to me was my PS3'. Matt, who had 3 siblings, indicated that his mother would not allow his family to have video games because, 'She thinks that we'll get addicted to it. That we won't go outside'. When asked how he felt about his mother's decision, Matt agreed that 'she's probably right. A lot of people that I know that have video games are not addicted but they play them a lot'. Watching television and playing video games was often the default choice for many participants because there were limited opportunities for them to be physically active with others once they reached their home.

Computer: Using the computer had become a daily routine for many participants in the study. John mentioned that 'many kids and teenagers depend on computers for entertainment'. Participants indicated that they used the computer for email, online gaming, watching videos online on YouTube, downloading and listening to music, and completing homework. In particular, many individuals spent a considerable amount of time on the social networking site Facebook. Jen stated that she could, 'spend lots of time, like two hours or so' on the computer each day. As with television, using the computer was often the easiest, and most entertaining, activity rural youth in this study could engage in due to limited facilities opportunities for physical activity close to their home.

Conversely, Matt noted that he does not spend very much time on the computer other than completing his homework. The primary reason for this was because his family did not have access to high speed internet as access was limited because he lived in a very rural community, and acquiring high-speed internet was very costly. Matt acknowledged that he would spend more time on the computer if he had high-speed internet at home.

Homework: Homework was a barrier to physical activity faced by all the participants. Jen explained how numerous hours of homework can lead to limited time for physical activity, 'When teachers pile homework on you, you can be sitting in one spot for hours'. Time spent on homework increased significantly for grade 12 students who were pursuing a university education. Julia explained how homework is her primary focus: 'Pretty much when I'm not at school I'm doing school work at home'. Students pursuing a university or college education spent a considerable amount of time on their homework to ensure they received admission at the school of their choice. For these students, the high demands of homework precluded their participation in physical activity. One reason that grade 12 students spent a large amount of time on their homework was because they wanted to leave their rural community and attend college or university larger urban centre, as evidenced by Julia's dissatisfaction with her community: 'It's a small town. Everyone knows your name and everything about you…there's just no privacy'.

Lack of opportunities close to home: All participants in this study resided in rural communities outside the larger community where the school was located. The major recreational facility, containing outdoor tennis courts, soccer fields, baseball diamonds, and a hockey arena, was located in the larger community. Many participants did not make use of these facilities because they were located too far from their homes. This was the case for Rob, living in a small community, who did not have many places to play tennis, 'I live in a small town…about 15 minutes from [where the school is located].There are no courts in [Rob's town]. There are not enough courts available'.

Some participants (n=3) noted that their rural environment was not adequately built to enable physical activity. Jen, who lived in a sparsely populated farming town (Fig3), has no sidewalks or street lights. Although she was still able to go for walks and run (only while there was daylight), she was unable to bike or rollerblade due to the condition of the road in her area.

Participants also indicated that the size of the rural area led to limited opportunities, as Brad discussed in his interview, 'It's a small community around here. So it's basically your house league sports'. He indicated that many less popular sports were difficult to play because of lack of resources and interest in the rural community. Thus, Brad needed to travel to a community further away to play in the hockey league he desired.

Facilitators and barriers

School and community athletics: School athletics were often strong facilitators for physical activity for participants. School athletics included a number of different opportunities including: recreational sports tournaments, competitive athletic teams, physical education courses, and the fitness centre located within the school. All grade 9 students at the school were required to take a physical education course[21]. Alice explained that her exposure to badminton in her physical education course sparked her interest in the sport: 'I learned it in gym and then I liked it. Then I heard that there was a badminton club so then I just joined it'. The fitness centre which contained free weights, weight lifting machines, as well as cardiovascular fitness machines, was also available at the school during school hours. Numerous participants (n=6) were also involved in community athletic teams outside their schools.

While school and community athletics were helpful for some participants, they acted as a barrier for others. There were instances where participants voiced their displeasure with their athletic team. For example Rob encountered a negative experience with a community athletic team, 'I had some pretty poor coaching experiences [with a competitive coach]…a lot of people didn't end up playing hockey after that year'. Rob's negative experience ended his days of playing hockey.

Family support and friends' interests: Families were a major facilitator to physical activity for many participants. Participants, such as Brad, often spoke about their parents as role models who guided them to engage in physical activity: 'When I was younger my dad kind of pushed me in the right direction so I was always going somewhere'. Participants also noted that they often looked on their older siblings as role models, and older siblings, as Julia discussed, were often the reason some individuals became involved in athletics: 'I wouldn't play any sports at all without him [brother]. The only reason I even started playing sports was because he played one'.

Conversely, families who were not interested in being active represented a barrier to physical activity. When families were uninterested in being active, participants often neglected physical activity as well. Tami recalled an occasion where her family was watching television and she brought up the idea of being active: 'I said we should probably be going for a walk instead of this [watching television]'. She went on to say her parents' response was, 'Maybe later'.

Figure 3: Photograph 2 – Unfit for physical activity

Participants noted that their friends' interests often had a large impact on what types of activities they would share. Some individuals began playing on an athletic team in order to spend time with their friends, as Rob explained: 'A lot of my friends played hockey so I wanted to play hockey'. Participants found their friends to be helpful in exposing them to new activities, having someone to be physically active with, and keeping them motivated. However, friends also represented a potential barrier to physical activity. Often, particularly for male participants, this meant watching television and playing video games. Although Matt mentioned earlier that he and his friends engage in physical activity when spending time together, he also admitted that 'Whenever our friends come over, sometimes they'll bring his Xbox so we'll play that downstairs a lot'.

Competitiveness: Some participants (n=4) indicated that competitiveness in athletics acted as a facilitator to physical activity. Eric believed that his competitiveness brought out good characteristics in himself, 'Just wanting to be in the game. Just doing the best you can, supporting everyone, and hoping you win every game'. An increased level of competitiveness also improved some participants' level of enjoyment of their athletic activity.

For other participants, a high level of competitiveness decreased their enjoyment of the activity because they wanted to engage in physical activity for sheer enjoyment rather than for competition. In addition, some individuals had issues with overly competitive coaches. Rob shared his experience with a hockey coach: 'I wasn't the greatest hockey player, and he [the coach] always wanted to win. So I didn't get to play as much as I wanted. It was not [supposed to be] a competitive league'. Rob stated that he simply 'wanted to play and have fun'. If competitiveness was too emphasized some participants actually considered ceasing their physical activity, for example John noted that 'I might quit' if the coach was too competitive.

Access to transportation: Access to transportation was significant for all the rural participants and acted as a facilitator to physical activity for some. Participants who could rely on different sources of transportation in order to continue their activity were more likely to engage in activities

and consistently participate. Jen explained that she shared rides with her teammates: 'We all share taking turns to drive us to volleyball in the morning'. This worked well for Jen because her teammates lived in the same area.

However, limited access to transportation functioned as a barrier for some students. Unfortunately Tami's parents were not able to support her transportation needs, and thus she could not join the community soccer team because she did not have a ride to and from the games. As all participants were bussed to and from school (Fig4), if they were unable to obtain another form of transportation they were unable to engage in activities before or after school.

Jen, a 14 year-old student who lived in a farming area, noted that sometimes her parents were too tired or busy to give her a ride, so instead she used an all-terrain vehicle (ATV) to travel to her friends' houses on occasion. As Jen did not have her driver's license she was not abiding by the law by driving the ATV on the road. Transportation is such a vital issue in rural areas that creative and sometimes illegal methods of transportation may be used by youth to access resources and activities.

Weather: Warm weather, particularly in the summer when participants had plenty of free time, increased participants' level of physical activity, as Alice explained: 'In the summer time I usually play a lot of sports'. Most participants indicated that they wanted to take advantage of warm weather by going outside to be active instead of sitting indoors.

However weather also acted as a barrier to physical activity for many individuals. Several participants mentioned that when they cannot be active outside, particularly in winter and on rainy days, they viewed much more television. Matt indicated that 'We watch it [television] a lot in the winter'. Participants likely resorted to watching television because there were limited indoor recreational facilities close to their homes.

In summary, study participants revealed that while a number of facilitators and barriers to physical activity exist for rural youth, many factors act as both facilitators and barriers. It is important to acknowledge these factors so that rural individuals can aim to take advantage of facilitators while trying to mitigate barriers; however, some barriers may be difficult to overcome because of the nature of rural communities. For example, youth may be separated from their friends, the school, and local facilities, if they exist, and the limited transportation available to youth in rural communities makes it challenging to engage in physical activity.

Discussion

Twelve themes emerged as perceived facilitators and barriers to physical activity for the study participants: three themes represent facilitators, four themes reflect barriers, and five themes act as both facilitators and barriers. Several implications and recommendations arise from these findings for rural communities, rural schools, and rural residents, and for future research.

Implications for rural communities

Due to the distances between people in rural areas, it is difficult for youth to engage in spontaneous group activity; thus, rural communities need to provide and facilitate opportunities for youth to be physically active[22]. It has been noted by Moore et al[23] that access to community based sport programs for youth is positively associated with increased physical activity levels. Rural communities may wish to explore the development of groups that could facilitate physical activity. such as '4-H clubs'; these community based clubs for youth aged 10 to 21 have operated successfully in rural areas in Canada for many years[24]. The 4-H clubs invite youth members to participate in a wide variety of projects relevant to agriculture, food, health and the environment, for example tending to livestock, gardening, and animal and plant science projects. Some 4-H clubs have developed outdoor adventure groups that engage youth in various physically and mentally challenging outdoor activities such as canoeing and rock climbing[25]. It has been noted that providing youth with an active role model and enabling social interaction between peers may increase youths' physical activity levels[26]. The opportunities afforded to youth in 4-H clubs may represent an ideal platform for youth to engage in physical activity with their parents, peers, older youth, or volunteers of the 4-H club.

Figure 4: Photograph 3 – Depending on the bus

In this study, a lack of recreational facilities was identified by participants as a significant barrier to physical activity. Since it may not be practical to construct recreational facilities in rural communities due to a low population, it may be helpful to allow rural residents access to existing school facilities after school hours. The school could adopt the 'community school'[27] or School Plus model[28] where the school serves numerous needs of the community by acting as a community centre, recreational facility, and location for adult education programs. By making the school and its resources more available to the community, the physical activity of all rural residents could be enhanced.

Implications for rural schools

Youth in this study spent a significant amount of their day (approximately 7 hours) at school. Thus, the school can have a major impact on the physical activity behaviours of students. Although many schools offer physical education courses to students in different grades, currently only a grade 9 physical education course is required for students in Ontario[21]. Thus, the Ministry of Education may consider making physical education courses mandatory for students in each year of secondary school, and increase time for physical activity in elementary schools.

Physical education teachers at schools could also provide additional assistance to youth by providing them with information on how to get involved with competitive and non-competitive school athletic groups and teams, school intramural athletic tournaments, and community athletic teams. It may also be helpful if physical education teachers could assist students to develop a personalized physical activity regimen using the equipment and other resources at their school.

Poor coaching experiences were described as a potential barrier to physical activity in this study, as well as in others[29]. In this study, competitiveness fostered by coaches was found to be both a facilitator and a barrier in participants' enjoyment of their athletic team. Thus, it may be useful for coaches to complete a compulsory training session to help them appropriately assess and address the various needs of individual players and facilitate the enjoyment and engagement of all youth on a team. It would be ideal if schools and communities could offer both competitive and non-competitive teams; however, this is unlikely in rural areas due to their low populations. However, creative solutions by rural schools and communities could help to address challenges regarding physical activity in their rural areas, for example how to overcome limited resources or

facilities in rural communities to offer new and creative physical activity opportunities.

Providing students with the option of taking a late school bus after school in order in engage in physical activity after school would be ideal but may be too costly for most rural communities. However, it may be possible for the school and community to develop a ride-sharing website. On this website parents and youth drivers could list where they are driving, what time they are driving, and how many seats they have available for others. Other youth or parents could access the website and contact individuals to obtain transportation. The development of a ride-sharing website would be more cost-effective than providing students with a late bus.

Implications for rural residents

The importance of role models for rural youth was highlighted in this study. In particular, this study as well as others[22,23,29,30] revealed that parental support is vital for increasing participation in physical activity for rural youth. Parents can offer support to their children in a number of ways. First, they may act as role models for their children by engaging in physical activity themselves on a regular basis. Parents can lead by example and it is likely, as youth in this study indicated, that their children will develop physical activity behaviours based on their parents' activities. Second, it is advisable that parents engage in physical activity with their children on a regular basis[26]. This would provide parents and children an opportunity to enjoy physical activity with each other which may also encourage physical activity in youth on their own, with others, and in the future. Finally, rural parents can support youth by encouraging them to engage in physical activity, as opposed to sedentary activities such as watching television and spending time on the computer, and by providing transportation to areas where they can be physically active.

Older siblings can also serve as important role models. Just like parents, it is important that older siblings participate in activities with younger siblings. This can provide youth with opportunities to learn about athletics and to build their skills and confidence. Siblings may also offer moral and emotional support for each other by providing encouragement when engaging in activities. Older siblings may also support their younger siblings by providing them with transportation to engage in physical activity.

Implications for future research

The data in this study were provided by a relatively small sample size and a sample of participants who had relatively homogenous backgrounds and circumstances. For example, most participants were fairly physically active, and seemed to live in families that were 'well-off' financially. For a more comprehensive understanding of rural youth and physical activity, future research may aim for a diverse sample of participants from high, middle, and low-income families, and include those who represent physically inactive as well as active youth. This could be achieved by conducting research across multiple schools and increasing the sample size. Also, additional questions inquiring about family income could be included on a written socio-demographic survey to obtain more detailed information about economic effects on youths' involvement in informal and formal physical activities, the amount of time they spend on each type of activity, and other relevant issues.

In this study, the first to use photovoice to explore rural youth physical activity, the amount and richness of pictorial and log book data were, unfortunately, somewhat limited. In future research of this type, it may be useful to meet with or telephone participants at the halfway point of the photograph-taking time period to encourage picture-taking and log book recording.

In future studies it may also be useful to conduct focus groups as well as individual interviews after participants have taken photographs. Focus groups would enable youth to share their photographs and experiences with each other and identify issues that they have in common, facilitate discovery of mutual solutions by learning from their own and others' experiences[16], and increase the richness of the data provided by participants.

This study, one of the first to investigate rural youth physical activity, clearly indicates that more research is needed on this topic. Research in other rural areas, for example, northern Ontario, the prairies, and in maritime communities, would provide significant insight into issues common and unique to various rural contexts and rural youth populations.

Conclusion

Physical activity rates continue to decline and to be a major health concern for Canadian youth[2]. Thus, it is becoming increasingly important to understand physical activity from the perspective of rural youth. This study engaged rural youth, using the photovoice methodology, in identifying and discussing facilitators and barriers to physical activity. The data revealed 12 themes that emerged as facilitators and barriers to physical activity for rural youth. The implications of this information for rural communities, rural schools, and rural residents are significant. These implications and recommendations may help facilitate increased participation in physical activity for rural youth by providing them, and their families and communities, with enhanced opportunities and resources to engage in physical activity. Further research is clearly indicated.

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