

# A qualitative examination of perceived barriers and facilitators of physical activity for urban and rural youth

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## Abstract

Many adolescents, both rural and urban, are not meeting the recommended levels for physical activity (PA). This investigation was designed to elicit socioecologic barriers and facilitators for PA in rural and urban middle school youth and their parents. Thirteen focus groups were conducted with 41 youth and 50 parents from eastern North Carolina. Distance, cost, crime/danger and television were mentioned as the primary barriers among parents. Youth mentioned school policies related to PA and crime/danger as the main PA barriers. The most salient facilitators discussed by parents were social/peer facilitators, facilities available and parental role modeling of PA. The primary facilitators mentioned by youth were social outlets and facilities available. Results indicate that intrapersonal, interpersonal, environmental and policy factors related to PA resonated with both youth and parents. Since rural and urban residents often perceive and interact differently with PA environments, more research is needed to properly adapt interventions.

## Introduction

Youth of today are part of what is considered the most inactive generation in US history [1]. Associated with this inactivity is the prevalence of overweight in youth that has steadily increased in the last four decades [2]. The prevalence of overweight (body mass index >85th percentile for sex and age) and obesity (body mass index >95th percentile for sex and age) in youth is emerging as a major global health concern [3, 4]. The prevalence of obesity in youth in the United States aged 6–11 years has increased from 5% in 1970 to over 15% in 2002 [2]. In addition, recent literature has suggested that rural residency might increase the risk of overweight and obesity in youth [5]. In turn, low levels of physical activity (PA) have been observed in rural youth compared with their urban counterparts, which might contribute to this increased overweight/obesity risk [6].

Recent studies in adults have demonstrated the importance of the social, physical and community environments in shaping PA. These include studies of community socioeconomic status [7, 8], social protective factors [9], urban sprawl [10, 11] and environmental support for and accessibility to PA [12–16]. Much of this work has been driven by a socioecologic framework [17] that identifies factors at the intrapersonal, interpersonal and community levels [18]. The intra- and interpersonal levels involve constructs such as perceived importance of PA, peer participation or parental modeling [19], while the community level includes environmental factors such as aesthetics, safety or social norms [18]. Numerous health disparities exist in PA levels between rural and urban residents in the

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United States [20]; these differences might be partially explained by differences in presence of environmental supports for PA [6, 21].

Compared with adults, youth are limited in deciding their daily routines and even more restricted in gaining access to PA facilities without transportation and guidance from a parent, school, or youth organization (e.g. YMCA, Boys and Girls Club, community recreation center) [16, 22]. Therefore, community and physical environments may be even more important determinants of PA among youth compared with adults. It is important to focus on modifiable correlates of PA for youth since such correlates can be used to guide the dissemination and implementation of evidence-based PA interventions in community and school settings [23].

Despite a large body of literature concerning correlates of PA in urban youth, there is a paucity of information concerning barriers and opportunities for PA at the intrapersonal, interpersonal and community level in rural youth [16, 19, 24]. Pate *et al.* [25] examined differences in PA in fifth grade boys and girls in the rural south and observed higher levels of PA in boys compared with girls. A major finding of the study was that self-efficacy for overcoming barriers and participation in community sports each explained significant portions of the difference in PA levels. In a follow-up study, Trost *et al.* [26] confirmed these initial findings, demonstrating prospectively that self-efficacy and community sport participation were important determinants of PA in rural youth, along with maternal PA participation for girls. While these preliminary studies might suggest that determinants of PA in rural youth are similar to those described for urban youth [27], other studies suggest that levels of PA are lower while obesity and related comorbidities are higher in rural youth [6, 28–31]. This indicates that more research is needed to identify modifiable determinants of PA particularly in rural youth.

Examinations of the built environment have largely occurred in urban settings, with rural settings only recently garnering researchers' attention [24, 32, 33]. Urban and rural physical environments are extremely different and these differences often

make findings obtained in urban settings invalid in rural settings [13]. For example, many of the environmental determinants identified as supports for PA such as sidewalks, street connectivity, population density and diversity of land use [24, 34] in urban settings are not applicable to rural residents. While trails, parks and recreation areas may be a viable location for PA in urban and rural youth [35], distance from walking trails has been identified as a potential barrier in adults [36], while the relationship is unknown in youth. Since rural areas have low population density, there is higher likelihood that rural residents will live further from activity areas compared with urban residents. Although a recent study concluded that rural youth encounter unique barriers and facilitators for PA [37], few studies have examined how these differences are perceived by youth and their parents across rural and urban environments.

The present investigation employed a qualitative approach using focus group discussions to achieve four goals, which were to: (i) examine PA barriers reported by middle school youth and their parents, (ii) examine PA facilitators reported by middle school youth and their parents, (iii) explore rural/urban differences in reported PA barriers/facilitators and (iv) examine suggestions for increasing PA of youth in the future. Qualitative methods were deemed most appropriate due to the paucity of literature described above regarding the PA environments of rural youth and the desire for the present study to contribute to the foundation of a future community participatory intervention project.

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## Methods

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### Participants

Participants were recruited through three middle schools located in adjacent counties (two urban schools and one rural school) in eastern North Carolina. Schools were chosen due to their geographic proximity and their respective service area diversity, detailed below. Parents were contacted through letters sent home with students via their homeroom teacher. Letters were distributed only

once to minimize the burden on the homeroom teachers. Recruitment letters were made available in English and Spanish in both counties and the version sent home was selected based upon the preference of the student. Interested parents were instructed to contact the project director via phone or email to arrange a convenient time for the focus group session. An incentive of \$20 per person was offered for participation.

For the purposes of this study, rural was defined as having less than 1000 persons per square mile and lacking an urbanized area of 50 000 persons or more (2000 US census definition). The participating rural school serves the entire county in which it is located, with its 2008 population estimated at 20 667. In 2000, the county had 72 individuals per square mile. The racial breakdown of the county is approximately 58% White and 41% African-American with 12% of the population of Hispanic/Latino ethnicity. A large proportion of working adults commute to the adjacent metropolitan area as indicated by the 28-min average commute time reported in 2000. For the county, 65% of residents held a high school diploma in 2000 and 71.3% of middle school students qualified for free/reduced lunch.

There are seven public middle schools in the urban county, but the two schools recruited exclusively serve the main metropolitan area whose 2008 population is estimated at 72 052. The urban schools are located in a county, with its 2008 population estimated at 156 081. The racial breakdown of the city is approximately 61% White and 34% African-American with 2% of the population of Hispanic/Latino ethnicity. In 2000, the city had 2364 individuals per square mile and working adults reported an average commute time of 18 min. For the city, 86% of residents held a high school diploma in 2000 and 51.1 and 57.9% of middle school students qualified for free/reduced lunch in the two schools.

## Procedure

For the present study, 13 focus groups (seven rural and six urban) were assembled from parents

and their child/children who indicated interest via a phone call or an email. Fifty parents initially indicated interest, but only forty-one parents participated. For the nine parents/guardians who were not included in the focus groups, most did not attend due to scheduling conflicts ( $n = 8$ ) and one due to lack of interest after being informed about the study. Fifty children were included as some parents had multiple eligible children. Six parent groups and six student groups were conducted in English while one additional group of parents who preferred to converse in Spanish were assembled to increase the diversity of opinions presented. Additionally, Spanish-speaking parents were recruited to give a voice to a growing constituency of the rural community and in response to the request of school officials in the rural community. Parent groups comprised parents/guardians of the students in the student group while the student groups consisted of dependent children who met the single inclusion criterion of attending the rural or urban school during the current school year. All focus groups were conducted at the middle schools where the youth attended. Each group consisted of 5–10 individuals each for a total of 91 participants (41 parents and 50 students). With one exception (a mother/father pair in the rural county), only one parent/guardian per household participated.

The focus groups were conducted by trained moderators who worked from a facilitator guide. Previous research was used to frame facilitator guide questions [38, 39]. Sample questions as they relate to the socioecologic framework can be seen in Table I. All facilitators were oriented to the procedures and the script in order to maximize uniformity in order and manner of questions asked. All sessions were digitally voice recorded except for one (due to an equipment malfunction) and detailed notes were taken during all sessions as a backup recording method and to document body language. All recorded sessions were transcribed by a professional transcriptionist with the exception of the Spanish session, which was transcribed by the Spanish-speaking facilitator. Focus group sessions lasted 30–60 min.

**Table I.** Sample questions from the student moderator guide and relationship to the socioecologic framework

Socioecologic constructs	Sample question
Intrapersonal factors	• Explain why PA might be important to overall health.
Interpersonal factors	• Is there anyone that lives close to you that you can be physically active with? • If your friends were more active, do you think you would be more active?
Physical/social environment	• Do you think the lack of sidewalks, parks or other open areas in your neighborhood prevent you from being physically active? • Do you think crime or traffic in your neighborhood prevents you from being physically active?

### Sociodemographics

Forty-one parents (20 rural and 21 urban, 10% male, mean age = 41.0 years) and their 50 children (22 rural and 28 urban, 44% male, mean age = 12.6 years, 58% 6th grade) participated in focus group sessions. Among the parents, 19.6% considered themselves to be Hispanic or Latino, and 21.6% considered their child to be Hispanic or Latino. In addition, 39.2% were married, 27.5% were single/never married and 33.3% were separated/divorced or widowed. Regarding parental education, 19.6% had less than a ninth grade education, 9.8% had some high school, 9.8% had a high school diploma or equivalent, 11.8% had some college, 15.7% had an associate's degree, 15.7% had a bachelors degree and 7.8% had a graduate or professional degree. The remainder selected multiple responses or did not answer. The participants were similar across counties with respect to race, education and marital status. However, rural parents were more likely to indicate that they and their child were of Hispanic or Latino ethnicity.

### Analysis

Three representative transcripts were chosen from each of the urban/rural and parent/child focus groups. Two independent coders read the three data-rich transcripts and created separate codebooks with operational definitions. The coders then met to resolve discrepancies and created one master codebook. The codebook consisted mainly of deductive codes, generated from research questions and the moderator guide. All 13 focus group transcripts were then coded independently using the codebook to assign codes to appropriate

segments of text in each transcript. After independent coding, coders met to discuss coding decisions and resolve discrepancies. NVivo (Version 8) was used to organize and manage focus group transcripts. Credibility of analysis was enhanced by (i) independent coding, (ii) examination of negative cases and situations of considerable agreement or disagreement, (iii) qualitative assessment of agreement between coders over time, (iv) iterative coding, (v) chart document coding (see description following) and (vi) re-reading transcripts with 'fresh eyes'.

NVivo has a 'chart document coding' feature, wherein amount of text coded with a particular code can be visualized in a bar chart with the code representing the most text assigned to it shown in the leftmost bar and the code with the least amount of text assigned to it shown in the rightmost bar. The chart document coding feature of NVivo was used to determine three meaningful themes in each of four groups (urban parents, rural parents, urban youth and rural youth). Final analyses included a review using the NVivo feature of 'nodes most frequently coded' for each focus group, to ensure that themes frequently coded were included.

## Results

### Barriers to PA

Among parents, distance, lack of culturally appropriate facilities and programming, cost, crime/danger and television were mentioned as the primary barriers. Youth mentioned school policies related to PA and crime/danger as the main deterrents of PA. The most salient facilitators discussed

by parents were social/peer interactions, facilities available and parental role modeling of PA. The primary facilitators mentioned by youth were social/peer interactions and facilities available. Table II shows commonly reported barriers and facilitators.

**Table II.** Commonly reported barriers and facilitators of PA by each of the four focus groups<sup>a</sup>

Focus group	Barrier	Facilitator
Urban parent groups ( <i>n</i> = 3)	<p><b>Distance and cost:</b> ‘You’d have to pay ... \$55 for a parent to have your daughter or your son to sign up for softball or baseball. And there are a lot of parents, who can’t. I mean, the gas prices are so high’.</p> <p><b>Danger:</b> ‘My son has to be in by the time the street lights come on ... my neighborhood is kind of rough ...’</p> <p>‘I don’t even let my kids go out in the neighborhood ... because the kids out there ...everybody want to fight each other ... it’s not ...a good environment’.</p> <p><b>Television:</b> ‘I think that they’re doing the games on the TV ... when they’re doing that, only thing they want to do is sit there all day long ... And then, you know, they ain’t doing no movement.’</p>	<p><b>Social:</b> ‘... you get a group of group of kids together, maybe play kickball, basketball; it helps with their social skills and interacting with others, and how to get along with other people that are from different backgrounds.’</p> <p><b>Facilities:</b> ‘there’s a lot of playgrounds and stuff around here that you can take your kids to go to free. But ... a lot of times transportation and the cost cut a big part in it’.</p>
Rural parent groups ( <i>n</i> = 4)	<p><b>Distance and cost:</b> ‘... just to get her out the house to have activities, do you want to pay the price of gas? ... Because he wanted to play traveling ball, and I told him we just couldn’t afford to play traveling ball ...’</p> <p><b>Television:</b> ‘and they just stay inside the house (and watch) the television... They don’t want to go outside...for me it’s important that they go outside to run around .... Not so much time in front of the television.’</p>	<p><b>Social:</b> ‘When they have friends over, they going to want to do stuff other than just look at TV.’</p> <p><b>Parent role modeling:</b> ‘But you can’t be a couch potato yourself and expect your child to go out there and do’.</p>
Urban youth groups ( <i>n</i> = 3)	<p><b>School PA policies:</b> ‘... we should get exercise all day in school ... PE every day.’ ‘I did go to PE last semester, and it was really fun, but now I think I’m just turned into like waste ... I’m not getting that much exercise.’</p> <p><b>Danger and supervision:</b> ‘it’s like you have on a certain color ... they might think you like that gang member and they like want to fight you or jump you or something like that and don’t know nothing about you.’</p>	<p><b>Social:</b> ‘... my school friends, we just go on bike rides and play volleyball and shoot hoops.’</p> <p><b>Facilities:</b> I live at a big field ... we have like two big fields on the sides at the entrance in our neighborhood.</p>
Rural youth groups ( <i>n</i> = 3)	<p><b>School PA policies:</b> ‘The sixth graders and seventh graders do (get recess) ... but eighth grade, we can’t go outside no more and play.’</p> <p><b>Danger:</b> ‘We had a breaking in, we have vandalism ... sometimes they don’t want us to go out too far depending how the area looks.’</p> <p>‘We have woods in our backyard. They be hunting. We hearing gunshots.’</p>	<p><b>Social:</b> ‘We—me, her, and my friends play baseball, soccer.’</p> <p><b>Facilities:</b> ‘We have ... jump ropes ... we have sports equipment that we can take outside and play ... we have fields, we have our PE classes ... softball field, football field.’</p> <p>‘down the street there’s a community center, and they have a basketball court and all that stuff.’</p>

<sup>a</sup>PE = physical education.

### *Parent perceptions of PA barriers*

*Distance.* Most rural parents reported that recreation centers and other centers for PA were located in urban areas, at least a 20-min drive from their homes.

In XXX (rural) County, it's not much for them to do. They don't have no YMCA. You know, for the parents, like myself, that don't have a car, you know, it's ... hard for them to get somewhere. (Rural parent)

If you ain't got no money to buy the recreation stuff ... you ain't got nothing in XXX (rural) County ... my kids like to go skating, and everything is in XXX (large town) ... About 25 minutes [from home]. (Rural parent)

Participants in one urban group noted that there were venues for ice-skating and skate boarding in the area, but these were not activities that 'ethnic kids' would enjoy:

It's like she said, nothing but ice skating and if you got a skateboard, it's a skateboard park. But, again, the ethnic kids are not really into skateboarding. (Urban parent)

Urban parents also mentioned that resources such as a local recreation club and newer parks were being built outside the city, in the 'suburbs', a long drive from their downtown residences.

easy access to it ... I mean, I live in a neighborhood, any place I take my kids, I have to drive them. You know, they can't—like when I grew up two blocks from the Y, we just walked down to the Y by ourselves all the time for everything, you know... . There's access in certain neighborhoods—yeah—but it's not where my family is. It's like the XXX Club moved out of XXX (large town). (Urban parent)

I think that we have parks in XXX, but I think that, especially now, they'll build them all out in the country ... they're not doing anything for the

city. They're building out in the country because it's less expensive—uh-huh—and personally, if I could afford it, I'd get out of the city. (Urban parent)

Participants in both urban and rural parent groups noted the burden of transporting youth to and from activities, especially after a long day's work:

But the thing was, even though it was free, the thing was transportation, trying to get them there and trying to, you know, get them home with, you know—I, you know, I made arrangements where I could get her there but I couldn't pick her up. I had my daughter pick her up. (Urban parent)

*Cost.* The expense associated with using various PA venues was mentioned in all six parent groups. This cost was frequently associated with venues such as kids' recreational sports programs, bowling alley, skating rink, commercial gyms and a local recreation club.

...we don't go there [to the XXX Club] no more ... It costs too much. I used to go, but it costs too much. (Urban student)

Cause it can get expensive getting kids involved in different types of activities. I have two daughters ... in cheerleading, softball, basketball, I mean, doing everything, it gets expensive. (Urban parent)

The expense of gas to get to venues was mentioned by all parent groups, despite whether they were urban or rural. Even some of the student groups mentioned how the gas expense was becoming unaffordable for their parents.

That's on the north end of (urban city), so we're traveling back and forth taking them different places, and the way gas prices are now, I mean, you spend a lot of money in gas. (Urban parent)

We wanted to go to the skating rink in Raleigh with Ms. XXX, but gas prices and we've never could. (Rural student)

The barriers of rural residence combined with high gas cost were stressed most often by rural Hispanic parents, who frequently discussed the remote nature of their residence in the rural county as a barrier to youth's PA. Participants mentioned being far away from potential PA programs or facilities, and given high gas prices, they were not able to drive their children to these opportunities. One participant said:

we are all alone at our house. We're outside. There are no parks or basketball courts ... because it's like 8 miles away ... they want to play but ... and another thing, gas just keeps going up and we can't take our kids to the park either. It's not so easy to just drive our cars and take our kids to a park. (Hispanic rural parent)

However, Hispanic parents reported that their children made the best of the resource-poor environment:

there aren't any basketball courts where they can go play ... just cornfields. Sometimes they go run around and go hide in the cornfields. (Hispanic rural parent)

One urban parent gave a succinct summary of the combined effect of the distance and cost barriers:

Transportation is another thing ... limits it for a lot of folks to participate with their children ... transportation or funds. (Urban parent)

*Danger and crime.* There were different perceptions of danger and crime among urban versus rural parents. Urban parents reported more apprehension related to gang activity and peer violence compared with parents of rural children.

'cause I live on XXX Road, and it do have a basketball court now in the street for the summer, but it's not safe to let your children go down there because they got other children that are about the same size down there, and nobody supervising nobody. So it's not a safe environment for any children. (Urban parent)

Parents of rural youth mentioned less fear regarding major crime, including fear of kidnapping:

We don't have that much crime. Normally, if they commit a crime, I hope they got a car 'cause they ain't going to get far ... I'm glad it ain't no crime or murders, so kids can go out there and enjoy their self. And you don't hear of crime on the news ... (Rural parent)

Lack of adult supervision was mentioned as a barrier to urban parents allowing their children to play outdoors in the neighborhood as well as a barrier to enrolling their children to use a local recreation club. Parents were uneasy when they witnessed teenagers supervising their children.

And when they change, you know, you used to go in and you feel safe with your child going to the XXX Club. Now, you aren't. But it is because you—it's just so many kids ... We have so many kids and not enough people to watch the kids. And then you have the kids volunteering to watch over kids. (Urban parent)

*Television.* Among both urban and rural parents, television and video gaming were mentioned as a barrier to PA. Parents expressed the preference for children to play outside, especially compared with video gaming and television watching. Said one parent:

I think now the way kids are raised, or the way the media is, it's pulling them toward television and more video games, and less is for activities than when I was young. (Rural parent)

### *Youth perceptions of PA barriers*

*School policies related to PA.* School policies were mentioned by all student groups as barriers to PA. While the school schedule was structured so that physical education (PE) was half the semester and health was the other half, students desired PE classes every day. Students also reported that the age requirement for school sports participation was a barrier:

They do [have sports here], but they don't allow sixth graders to play. (Urban student)

They say, for some reason, if you're 15 like August, you can't play ... I'll be 15 in July, so I can't play any sports. (Urban student)

Students and parents both reported zoning policies that districted students to attend a school not within walking or biking distance when the student actually lived within walking distance to another school.

What's weird though is they got people like right beside XXX [school that is a block away] ... that they make them go here [school that is across town] ... Like I knew someone that lives ... only like two blocks away, and she has to go here ... so it's weird. (Urban student)

Students often mentioned the amount of homework assignments as a barrier to spending time in physical activities and also mentioned teachers making excuses to skip recess:

... sometimes like when—when we don't finish our work, our teachers just don't take us outside. (Rural student)

And we have to do homework. I mean, every night, ... like when you get out of practice, you decide to do homework, and then you won't have time to do nothing (Urban student)

*Danger and crime.* Both rural and urban students mentioned danger and crime as barriers to PA, especially discussing parental restrictions on movement and activities in certain areas. However, unlike their parents, urban youth discussed a dislike of adult supervision and desired more independence.

But I don't like being under people's supervision like that. It aggravates me for some reason. I hate when people watch me. (Urban student)

Rural youth did not mention supervision, but did report the unique barrier of hearing gunshots, people hunting in their area.

### *Parent perceptions of PA facilitators*

*Social/peer influences.* In general, parents perceived that children were in an important time in their lives for establishing peer relationships and

noted that peers were the ones with the greatest influence over children:

'Cause at this age, the teen age, it's like the friends are becoming more impressionable, rather than the parents (Urban parent)

Parents also noted the advantage of PA allowing students to cultivate social skills:

I think it helps provide kids, you know—you know, you get a group of group of kids together, maybe play kickball, basketball; it helps with their social skills and interacting with others, and how to get along with other people that are from different backgrounds. (Rural parent)

Parents noted the importance of children having friends around for being physically active, comparing it to their own desires for more social support:

When they have friends over, they going to want to do stuff other than just look at TV. (Urban parent)

Urban parents reported that there were facilities in their areas where youth could be active compared with rural parents. Rural parents, compared with urban parents, reported greater importance of parental PA role modeling as a facilitator.

### *Youth perceptions of PA facilitators*

Youth, like parents, frequently reported participating in active (e.g. basketball and walking around town) pursuits with peers.

I don't like it when I have to walk alone. But like when I'm with my friend to walk somewhere, it's fun. (Urban student)

Similar to their parents, youth mentioned facilities such as fields, basketball courts and community centers as facilitating PA.

### *Future PA venues*

Suggestions for future PA venues are shown in Table III. Parents' suggestions focused on



**Table III.** *Suggestions for future PA venues by focus group*

Focus group	Suggestions for future PA venues
Urban parent groups ( $n = 3$ )	<ul style="list-style-type: none"> <li>• Skating rink, YMCA, Boys and Girls Club</li> <li>• Use of abandoned buildings for PA venues</li> <li>• Boys and Girls Club, YMCA (to interact with friends and family)</li> <li>• Parks</li> <li>• Something for all ages</li> <li>• No or low-cost venues</li> </ul>
Rural parent groups ( $n = 4$ )	<ul style="list-style-type: none"> <li>• YMCA, Family Life Center, Boys and Girls Club, Bowling and skating rink ‘all under one roof’</li> <li>• Use of abandoned buildings for PA venues</li> <li>• Public pool at low cost</li> <li>• Public transportation system</li> </ul>
Urban youth groups ( $n = 3$ )	<ul style="list-style-type: none"> <li>• Indoor facilities/sports and recreation centers, teen center (away from mosquitoes)</li> <li>• No or low-cost venues</li> <li>• Places to socialize</li> <li>• Public transportation system</li> <li>• Basketball courts open at all hours</li> <li>• Public pool at low cost</li> <li>• PE in school every day</li> <li>• Something for all ages</li> <li>• Less police interference with outdoor activities</li> </ul>
Rural youth groups ( $n = 3$ )	<ul style="list-style-type: none"> <li>• YMCA, Boys and Girls Club, indoor gym, skating rink</li> <li>• Place to socialize</li> <li>• Public pool at low cost</li> </ul>

supervised family social time. They preferred indoor areas that would integrate skating, bowling and other such indoor activities into one complex. Both urban and rural parents mentioned using abandoned buildings as the shell for a recreation complex that might contain a skating rink and other activities:

But downtown where that fire was ... all those abandoned buildings out there ... I looked at that stuff, I said, if they would gut that out and throw in a skating rink ... (Urban parent)

Participants in three parent groups compared (large town) with New York City where they had been raised:

When I was in the City ... we biked and would bicycle. You know, like we had a bicycle club and we would ride from like Brooklyn to Manhattan. (Urban parent)

... we used to live in Brooklyn, and we had a sports club. And in that sports club, we used

to go every Friday night. And my sister and I, we would take classes and then they would have another separate for the children, so the parents could be into their classes and kids could have their class... that was convenient, you know, because we were all there ... And it was in walking distance. That’s the differences about living here as opposed to living up north. There are no sidewalks. You know, walking is not encouraged because there are no sidewalks. (Rural parent)

Students’ suggestions were similar and focused on indoor facilities that would provide opportunities for socializing with friends and for participating in many types of activity (e.g. skating and basketball). Rural youth reported there was adequate access to public parks. The main facilities perceived to be missing were indoor facilities, such as basketball courts and skating rinks.

Both rural parents and students mentioned the need for public pool access at low cost. In addition, a barrier was also mentioned related to school policies: both urban parents and students mentioned

the need for activities available to all ages, citing gaps in the programs offered for youth aged 13–16 years.

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## Discussion and conclusions

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This qualitative study demonstrated that both rural and urban-dwelling parents described physical distance to activity areas and the associated costs of transportation as key barriers to youth participation in PA. Among urban parents where recreation programs were more likely to be available, parents also indicated that the costs of programs were prohibitive. These comments may reflect the timing of data collection since a noteworthy increase in fuel costs occurred prior to and continued through the data collection period. Also, initial discussions of a national recession were first voiced in this season. However, even in the best of economic times, sociodemographic trends indicate an increase in single-parent households and a greater number of youth among low-earning families [40, 41]. Thus, these barriers are likely to be persistent.

Both urban and rural parents also reported that electronic media (i.e. TV, video games and computers) thwarted their children's motivation to be active. Several national initiatives have begun to use media messages to encourage youth to be active and play outside. The efficacy and cost of these messages has been widely varied [42, 43]. As an alternative to messaging, parents suggested that serving as a role model for their children and providing peer partners and socialization had the capacity to increase their children's activity levels. Among urban parents only, park sites were noted for providing opportunities for recreational sports and play although access to these areas was tempered by perceived distance, transportation costs and concerns about their child's safety [38]. Parents in the study often harkened back to their childhood days in large cities such as New York City when they lived in close proximity to peers and walked freely in and about the city. This urban model seemed to serve as an ideal in the minds of some parents on how to 'best' facilitate youth activity.

This idealized model is mired by both urban form and concerns for adolescents' safety. As indicated in the results, different safety concerns were salient to urban as compared with rural parents. Urban parents expressed fear of the social environment of PA areas, which might include drug dealers and gangs. Conversely, rural parents were less concerned about crime. This is in contrast to the findings of Yousefian *et al.* [37] who reported safety concerns of rural youth (aged 10–18 years) that included abduction and assault by sex offenders. While the source of the differences is unknown, they might potentially stem from regional norms (Maine versus North Carolina), age differences (Grades 4–12 versus 6–8) or a local event such as recently enacted sex-offender policies noted by Yousefian *et al.* [37]. Regardless, literature investigating youth PA has recognized parents' and children's safety concerns as barriers to active school commuting and neighborhood PA [44–47] and the current findings are among the first to compare parents' safety perceptions across rural/urban environments.

Adolescents were cognizant of their parents' safety fears and cited this concern as a common constraint to their activity participation. Both urban and rural youth reported that their parents' supervision and vigilance to neighborhood threats reduced their opportunities to be outside and to be active. Urban youth did describe gangs and drugs as legitimate dangers while rural youth identified vandalism, hunters and isolated stretches of land as environmental dangers. Interestingly, youth in public activity spaces and recreation programs 'felt watched' that reduced their desire to visit these sites/programs and be physically active. It seems that increasing adolescent PA will require delicate juggling between parents' needs for safety and adolescent's expressed desire for independence.

Youth also identified school policies as barriers to PA. Students reported that opportunities for exercise were limited in physical education class and expressed frustration that recess had often been reduced and withheld. Review of coded data showed that nearly all discussion of school policies and practices were initiated by the youth focus group

members instead of parents. Further, this discussion was not explicitly included in the interview guide but emerged when youth were asked what limited their PA levels. Although the reliability of these findings should be investigated in similar focus group discussions that are not hosted in school setting, findings do remind us of the centrality of school in adolescents' lives. Youth spend approximately 7 hours in school on most days of the year and macro-level changes to school systems, policies and the built environment around schools may be an underutilized area for intervention.

Despite feeling constrained at school settings, youth did not identify a change in rules or policy as a potential activity facilitator. This may indicate that youth do not perceive policies as mutable. Instead, youth participants described the presence of peers and facilities as factors that increased their PA. Home sports equipment, community centers, neighborhood park sites and even undeveloped natural areas were all identified as useful resources for PA. Similarly, youth expressed that having friends and neighbors to be active with was key to facilitating their activity. Discussions of social support for children's PA often focus on parental encouragement to be physically active and having logistic parental support that allows PA [48, 49]. Less research has quantified increases in PA volume or intensity associated with children's participation in activities with their peers or parents [50].

With regard to planning for future PA facilities, the greatest demand was for indoor facilities. Strong consensus was evident among all groups in the desire for low-cost swimming pools. Parents also sought locations for safe supervised family time and identified building reclamation as a potential avenue for multiactivity sites. This grassroots suggestion for action may be advisable to communities who are concurrently trying to increase citizen health, decrease transportation costs, transportation-related energy consumption and reclaim blighted areas. The latter point is important since the utilization of reclaimed neighborhood natural areas could provide opportunities for PA in youth [51].

With any research, it is important to interpret findings in light of strengths and limitations. First,

perhaps because of their ages and because groups included their school peers, adolescents were often quiet and difficult to draw into the conversation during the focus groups. Second, codes and themes discussed reflect the *a priori* structured moderator guide. The adoption of deductive codes and an interview guide may have limited the scope of discussion and researchers may not have uncovered all key variables and topics of importance to parents and adolescents. Weaknesses in data collection are balanced by strengths in sampling and analysis. A diverse and purposeful sample of rural and urban participants is unique. Also, the use of two independent coders, one of whom was not involved in data collection, strengthens the identified conclusions. Finally, our results are strengthened by the corroboration between youth and parent focus groups on barriers such as distance, gas expense and neighborhood dangers and facilitators such as easily accessible PA resources and social interactions.

In summary, the findings from this qualitative study suggest that the pervasive model of PA behavior, the socioecologic model, is a relevant framework for understanding rural and urban youth PA. Extant research has most frequently focused on youth's self-efficacy, social support for PA and availability of PA areas as factors that may constrain or facilitate PA. Overall, results from the present study aligned well with the levels of the socioecologic framework [17]. The findings from this study suggest that interpersonal (safety, social/peer interactions and supervision) and policy factors (school) had the greatest impression on youth. We recommend further examination of these factors that are currently considered in the socioecologic model but not consistently operationalized in the literature. Further, we recommend an additional focus on geographic setting in PA research since rural and urban samples are likely perceived and relate to PA environments differently.

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### Conflict of interest statement

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This work is solely the responsibility of the authors and does not necessarily represent the official views of the Centers for Disease Control and Prevention.

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