

Listening to Girls and Boys Talk About Girls' Physical Activity Behaviors

Maihan B. Vu, DrPH, MPH

Dale Murrie, MAT

Vivian Gonzalez, MEd

Jared B. Jobe, PhD

As part of the formative assessment for the Trial of Activity for Adolescent Girls (TAAG), a multicenter study to reduce the decline of physical activity in adolescent girls, girls and boys with diverse ethnicity from six states participate in focus groups and semistructured interviews. Data from 13 girls' focus groups ($N = 100$), 11 boys' focus groups ($N = 77$), and 80 semistructured interviews with girls are examined to identify perceptions of girls' physical activity behaviors to help develop TAAG interventions. Both girls and boys talk about physically active girls as being "tomboys" or "too aggressive." Girls are more likely to characterize active girls as "in shape," whereas boys say they are "too athletic." Girls report boys to be influential barriers and motivators in shaping their beliefs about physical activity. Given the strong influence of peers, developing successful interventions for girls should include verbal persuasion, modeling, and social support from both girls and boys.

Keywords: *formative research; physical activity; girls; boys; perceptions*

Lack of physical activity is a major risk factor for coronary heart disease and is known to be associated with increased risk for developing chronic diseases (Centers for Disease Control and Prevention, 2001; U.S. Department of Health and Human Services, 1999). Population surveys have shown that fewer than 25% of American adults meet recommended physical activity standards (U.S. Department of Health and Human Services, 1999). The surveys also show that females, as a group, are less active than males and that ethnic and racial groups tend to be less active than Whites. These gender and ethnic differences become markedly evident during the middle and high school years, when physical activity rates fall off greatly for non-White girls. Accordingly, there is concern that the typical physical activity opportunities provided to adolescent girls may not adequately

Maihan B. Vu, University of North Carolina. Dale Murrie, University of South Carolina. Vivian Gonzalez, Tulane University. Jared B. Jobe, National Heart, Lung, and Blood Institute.

Address reprint requests to Maihan B. Vu, DrPH, MPH, University of North Carolina, School of Nursing, CB#7462, Carr Mill Mall, Suite D-4A, Chapel Hill, NC 27599; phone: (919) 966-8561; fax: (919) 966-8564; e-mail: mvu@email.unc.edu

Authors' Note: This research was supported by National Heart, Lung, and Blood Institute Grants U01HL066845, U01HL066852, U01HL066853, U01HL066855, U01HL066856, U01HL066857, and U01HL066858. The authors thank Drs. Allan B. Steckler, Kurt M. Ribisl, June Stevens, and Dianne Ward, from the University of North Carolina at Chapel Hill, and Dr. Joel Gittelsohn, from Johns Hopkins University, for their expertise, guidance, and assistance with this study.

Health Education & Behavior, Vol. 33 (1): 1-16 (February 2006)

DOI: 10.1177/1090198105282443

© 2006 by SOPHE

promote physical activity during the critical developmental period between childhood and adulthood.

Considerable attention has focused on identifying factors that influence adults to participate in physical activity. For example, Brett, Heimendinger, Boender, Morin, and Marshall (2002) conducted an ethnographic study in 29 families with young children to aid the development of a multicomponent diet and physical activity intervention. Their findings indicate that a number of factors, such as values, facilitators (e.g., disease in the family, community opportunities for exercise), and social, structural, and cultural barriers (e.g., working parents, costs of exercise), interact to develop physical activity decision making. Participation in physical activity is a complex behavior in which different determinants may be relevant for different groups at various developmental stages. Researchers have suggested that to understand the influences on physical activity for an entire population, factors for each population segment need to be studied (Sallis & Hovell, 1990). Despite this recommendation, research targeting physical activity conducted in the United States continues to focus primarily on Whites and adults (Sallis et al., 1992). Less is known about physical activity among younger populations. Few researchers have conducted formative assessment studies with adolescent girls and boys to compare and contrast beliefs and perceptions of girls' physical activity behaviors.

Adolescents' interests in and perceptions of the benefits of physical activity differ by gender. For example, boys list competition whereas girls more often list weight management as reasons for engaging in physical activity (Centers For Disease Control and Prevention, 1997). By adolescence, girls and boys have different levels of physical skills, are interested in dissimilar types of activities, and differ in learning styles. Girls are less likely than boys to participate in vigorous physical activity, strengthening activities, and walking or biking (Centers for Disease Control and Prevention, 1999). Girls are also less likely to believe that the benefits of exercise outweigh the barriers. Garcia et al. (1995) found that compared to boys, girls have lower self-esteem, have a perceived lower health status, and also perceive themselves as less athletic than boys. Godin and Shephard (1986) studied exercise-related beliefs and found that compared to boys, girls had weaker beliefs that exercise would help them be healthy, make them tired, or be fun. However, girls had stronger beliefs than boys that exercise would help them look better. In a similar study, boys were more likely than girls to report competition, recognition, and increasing strength as personal incentives for exercise. Girls, on the other hand, were more likely to report personal incentives of weight management (Tappe, Duda, & Ehnwald, 1989). Adolescent girls participate less in high-risk sports than boys but generally engage in more individual physical activities than boys. For example, when questioned about what activities they participated in during the previous 7 days, 54% of girls compared with only 23% of boys reported participating in aerobics or dancing. In contrast, 62% of boys and 30% of girls reported playing basketball, football, or soccer (U.S. Department of Health and Human Services, 1996). Participation levels in other activity categories, such as running, skating, or tennis, was also higher for boys than girls. These data suggest that adolescent girls were less likely to participate on sport teams run by schools or other organizations than were boys (U.S. Department of Health and Human Services, 1996).

Adolescent girls, particularly African American girls, are at increased risk of adopting a sedentary lifestyle during adolescence (U.S. Department of Health and Human Services, 2000). Because regular physical activity is associated with both short- and long-term health benefits, efforts encouraging adolescents to adopt a physically active lifestyle or remain physically active are critical. Adolescent girls prefer different activities, tend to participate in physical activity for dissimilar reasons than boys, and may face various bar-

riers, indicating that targeted interventions should be designed specifically for girls. A detailed and accurate understanding of the factors that influence adolescent girls' physical activity behavior can help in the development of physical activity interventions that meet the needs of adolescent girls. Toward this end, this article presents qualitative findings from the Phase 1 and Phase 2 Formative Assessment for the Trial of Activity for Adolescent Girls (TAAG), a randomized, multicenter field trial of 36 middle schools with the goal of reducing the decline in physical activity in middle school girls. Phase 1 was designed to provide information to develop the overall intervention strategy and materials. In Phase 2, information was used to refine the development of intervention materials and messages. The purpose of this qualitative study was to identify the similarities and differences in girls' and boys' perceptions of girls' physical activity behaviors to aid in TAAG's development of interventions to increase physical activity in middle school girls.

METHOD

Research Design and Sampling

Semistructured interview guides for girls and focus group discussion guides for middle schoolers (boys and girls) were developed collaboratively by a multidisciplinary team of researchers and practitioners from the University of Arizona, San Diego State University, Tulane University, University of Maryland, University of Minnesota, University of South Carolina, University of North Carolina, and the National Heart, Lung, and Blood Institute. The interview and discussion guides were informed by social ecology theory and key principles and strategies from social marketing. Gittelsohn et al. (2006) provides a description of the theoretical framework that was used to guide the formative work. All interview and discussion guides were pretested by a trained moderator with a small sample of adolescents at one of the field sites. Based on feedback and responses from respondents, some questions were modified (i.e., reworded, reorganized) prior to training all field center staff at a centrally located venue. Representatives from each site with interview experience were trained to collect data and were certified. A telephone conference-call training explained the purpose of the interviews, the interview guide, how to sample girls and obtain consents, and methods of recording information. It also covered interviewing styles and methods of probing for information. Moderators were then instructed on how to write up the interview summary and data management procedures. Certification consisted of two phases. The first involved attending the telephone conference-call training. The second phase involved completing one certification interview at one of the schools. The certification interview was typed up verbatim and critiqued by a team of experts in qualitative research. When the interview was considered adequate, the moderator was considered certified. Each field site received institutional review board approval from its university prior to data collection. For the individual interviews with girls, focus groups with girls, and focus groups with boys, parental consent forms were collected, and adolescent assent forms were obtained from all participants. Adolescent girls and boys were recruited from middle schools in Tucson, Arizona; San Diego, California; New Orleans, Louisiana; the vicinities of Baltimore, Maryland, and Washington DC; Minneapolis, Minnesota; and Columbia, South Carolina. We used purposive sampling to select participants for the individual interviews and focus groups. Within each school, teachers were asked to select students based on gender, ethnicity, and perceived physical activity levels in physical education classes. Our final sample included 80 individual interviews

with adolescent girls, 13 focus groups with 100 adolescent girls, and 11 focus groups with 77 adolescent boys. Data from the three qualitative instruments were combined and synthesized into one shared database. Each of these data collection instruments (available on request) is described below.

Girls' Semistructured Interviews

A total of 80 qualitative interviews (range of 8 to 21 girls per field site) were conducted from September 2001 to January 2002 with middle school girls in the seventh and eighth grade. Half of the girls interviewed were seventh graders, and half were eighth graders (mean age was 12.8 years, range of 11 to 15). Forty percent of the girls were African American, 34% White, 18% Hispanic, 2% Asian, and 6% Other (Table 1). Each site conducted interviews with a minimum of six girls each in the seventh and eighth grade. When possible, girls were selected from two different schools. Within the schools, teachers were asked to select girls from various ethnic and racial groups and based on their own judgment, from a range of physical activity levels in classes that were representative of the student body (not advanced or remedial classes).

The individual interview consisted of 35 open-ended questions, probes, and follow-up questions that covered topics including how girls spend their free time, meanings of physical activity, favorite physical activities, influences on physical activity, perceptions of physical education class and school setting, opportunities for physical activity, activities other than physical activity, access to computers and the Internet, and reactions to the proposed TAAG logo. Each interview lasted approximately 45 to 60 min.

Girls' Focus Groups

A total of 13 focus group discussions ($N = 100$; two to three focus groups per field site) were conducted in May 2002 with middle school girls in the seventh and eighth grade (Table 1). Each site conducted focus groups with an average of 8 girls (range of 4 to 12) based on the designated ethnic representation of the geographic location (i.e., Caucasian girls in Minnesota and California, Hispanic girls in California and Arizona, and African American girls in South Carolina and Louisiana). At the sites, members of the same ethnic groups were grouped together. One focus group was conducted with only seventh grade girls, and the other was conducted with only eighth grade girls. When possible, girls were selected from two different schools. Within the schools, teachers were asked to select girls from various ethnicities and physical activity levels in classes that were representative of the student body (not advanced or remedial classes). The focus group discussion consisted of 44 open-ended questions, probes, and follow-up questions that covered topics including overall perceptions of the proposed TAAG project, types of girls or cliques in middle schools, feedback to TAAG messages, promotional materials, a TAAG Web site, and ideas for competitions and contests. The focus groups were conducted in a classroom or similar setting empty of students and not in use at the school. Each focus group discussion lasted approximately 45 to 60 min.

Boys' Focus Groups

A total of 11 focus group discussions ($N = 77$; approximately two focus groups per field site) were conducted from January 2002 to March 2002 with middle school boys in the seventh and eighth grade (Table 1). To assure a diverse sample, each site conducted

Table 1. Characteristics of Respondents

	Girls' Individual Interviews (80 Interviews)		Girls' Focus Groups (13 Groups, 100 Girls)		Boys' Focus Groups (11 Groups, 77 Boys)	
	N	%	N	%	N	%
Grade						
6	—	—	—	—	1	9
7	40	50	7	54	6	55
8	40	50	6	46	4	36
Ethnicity						
White, Caucasian	27	34	2	15	3	27
Black, African American	32	40	2	15	3	27
Latino, Hispanic	14	18	3	23	2	19
Asian, Pacific Islander	2	2	—	—	—	—
Other, mixed group	5	6	6	47	3	27

focus groups with an average of 7 boys (range 5 to 9) based on prevalent site-designated ethnic representation. One focus group was conducted with only seventh grade boys, and the other was conducted with only eighth grade boys. One focus group was conducted with sixth grade boys at one site. When possible, boys were selected from two different schools at each site. Similar to the girls' focus groups, teachers were asked to select boys from various ethnicities and physical activity levels in classes representative of the student body.

The focus group discussion consisted of 44 open-ended questions, probes, and follow-up questions that covered topics including classification of physical activities for boys, girls, or both; perceptions of girls being active; perceptions of physical education and after-school activities for girls; and perceptions of the proposed TAAG project. The focus groups were conducted in a classroom or similar setting empty of students and not in use at the school. Each focus group discussion lasted approximately 45 to 60 min.

Coding and Data Analysis

Qualitative data from the girls' individual interviews, the boys' focus groups, and the girls' focus groups were analyzed using Qualitative Solutions and Research (QSR) N6 (the latest version of NUD*IST), a software program for analyzing text-based data. All interviews and focus group discussions were audiotaped with the participants' assent. Tapes were then transcribed verbatim and entered into QSR N6. A joint codebook was developed for the three qualitative instruments, and additional themes were added to capture themes from specific questions. The qualitative data are based on 104 transcripts (80 interviews with girls, 13 focus group with girls, and 11 focus groups with boys) that yielded approximately 5,000 pages of transcript text. Each line of transcript response was individually coded and content analyzed. This provided a systematic approach for identifying major and minor themes among all responses.

RESULTS

The focus of this study was to explore adolescent girls' and boys' perceptions of girls' physical activity behaviors. Three broad topics are reported here: (a) perceptions of physically active girls, (b) perceptions of barriers for girls to be physically active, and (c) perceptions of motivators for girls to be physically active. The themes related to each of these topics and illustrative quotes are presented.

Perceptions of Physically Active Girls

Adolescent girls were asked, "What do you think of girls who are really in shape and active?" If it appeared that the girls had a different definition of physical activity, the moderator would explain that for the purposes of these interviews, physical activity was any activity where a person moves around and breathes hard and sweats. The majority of girls participating in the interviews had positive reactions to girls who were physically active. For example, girls were more likely to describe an active girl as someone who was in shape and healthy. Active girls also took care of their bodies and were physically fit:

I think that they might have a better heart. They may have more strength to do other things as opposed to someone who doesn't work out. They can't get up and run a lap, but the other girls who are in physical shape can. (Eighth grade girl)

In the interviews, girls often included the words *good* and *cool* to describe active girls. Active girls were viewed as athletes, and in many situations, girls identified themselves to be an active girl:

I think that's cool because a lot of girls just like, don't like to play sports and some, most girls don't like to play, participate in sports. When I was younger, none of the girls wanted to play anything. They just wanted to sit out and watch, and I like, I always wanted to get involved in sports. (Seventh grade girl)

Adolescent girls talked about how active girls liked to be active and do things. Whether they were school athletes or those who participated in extracurricular activities, active girls were the ones who enjoyed being involved in sports and were good at it. They were also described as energetic and capable of accomplishing tasks others could not complete. Girls who were active were also seen as good examples for adolescent girls. The girls interviewed talked about how active girls motivated them to be more physically active. By their examples, girls were encouraged to be more involved. This theme is illustrated with the following quotation:

I think that it's good that they're working out and they do a lot of physical activities. I think that most importantly, I think physical activities are like if someone did a physical activity, like in soccer, those are like my role models. (Eighth grade girl)

Common themes that emerged from the girls' and boys' focus group discussions included physically active girls being described as tomboys, girls who play sports, and girls who are too aggressive. Whereas girls talked about active girls as being good at sports and motivators, boys appeared uncomfortable by girls who were active. For example,

it kind of makes me uncomfortable if a girl is more athletic than I am . . . cause it makes me feel less dominant. I feel inferior. I feel lacking. It makes me feel like the woman. (Group of seventh grade boys)

Compared to girls, adolescent boys were more likely to have negative views of girls who were active. Active girls were described as girls who wanted to be like boys. Consequently, they were not viewed as a "turn-on." Some boys looked with disfavor on girls who were sweaty and dirty. Others said that they would probably ignore and try to get away from them. In reference to physically active girls who sweat, they had the following to say:

That's disgusting. (Group of sixth grade boys)
It's nasty. (Group of seventh grade boys)

However, in contrast to views of physically active girls, girls and boys reported unfavorable views of girls who were physically inactive. The majority of girls and boys con-

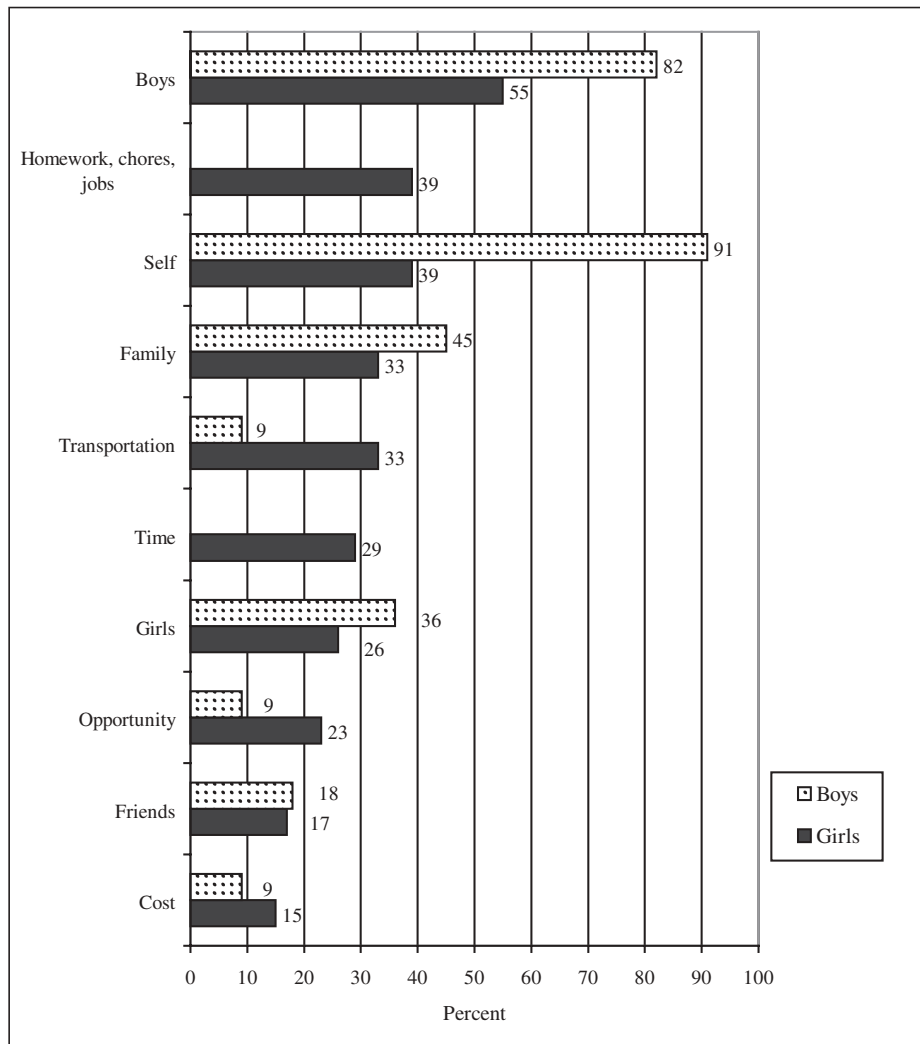


Figure 1. Physical activity barriers for adolescent girls by gender.
NOTE: Sample sizes: girls ($N = 80$ interviews, 13 focus groups), boys ($N = 11$ focus group).

sidered inactive girls to be either lazy or “fat.” They also mentioned that girls who were not interested in physical activity were not as fun as active girls.

Perceptions of Barriers for Girls to Be Physically Active

Adolescent girls and boys also identified a number of barriers that prevented girls from being physically active (Figure 1). At the top of the list for adolescent girls were boys. More than half of the girls interviewed discussed how boys hindered their ability to be

physically active. Negative reactions by boys (e.g., taunting, name calling) were viewed as the main barriers for girls. For example, girls said,

Like we can go and practice or whatever, and I can do good in practice, and there's some boys they're just like, "all she's gonna do is mess up 'cause she's a girl." (Eighth grade girl)

As indicated in the statements above, boys made fun of girls when they did not perform an activity correctly or play a sport according to the rule. This was discussed in terms of boys telling girls they do not know the rules to games, do not know how to play certain games, and should not play with boys. For example, one girl said, "Some guys don't, they just want it their way and how they want it, and they get mad if you throw the ball wrong or if you miss the ball or something, sometimes they do that" (Seventh grade girl). When discussing the ways in which boys negatively affected physical activity behaviors, girls talked about the effects of verbal discouragement on their self-esteem:

When they're making comments, good comments, [it] makes you feel good. The bad comments, it kind of lowers your self-esteem a little bit 'cause you're not actually sure if they're telling the truth or just joking around with you. (Eighth grade girl)

In focus group discussions, adolescent boys confirmed this perception. Boys mentioned that they did and said things to discourage girls from being physically active. Their comments to girls often came in the form of teasing. This teasing was targeted particularly to girls who played football or what was considered a "man's sport." As these boys explained,

say a girl was really, really good at football, and she was showing them up, and if she was even better than most of the kids there, then they might not like her. . . . Yeah, 'cause if they were better, if they were worse, they'd tease them, but if they were better than the boys, then the boys would tease them even more to try to like put them down. (Group of seventh grade boys)

According to adolescent boys, the main physical activity barrier girls faced were themselves. Not wanting to get dirty or sweaty, fears of breaking a nail, and being embarrassed or shy were some common reasons boys said girls were not more active. Boys also explained that many girls' interests did not include physical activity. For example,

girls don't really try. They just don't care. Girls don't take sports and games . . . like they're not as serious as boys are. (Group of seventh grade boys)

They're materialistic. They worry about looking good all the time. They don't want to get dirty and nasty. (Group of eighth grade boys)

Similar to adolescent boys, girls also identified themselves to be a primary hindrance to physical activity. More than one third of the girls admitted that next to boys and having too much homework, the only thing keeping them from being physically active was themselves. Lack of motivation or interest, low self-esteem, and being shy or withdrawn were some of the reasons girls were uninterested in participating in physical activities. Wanting to watch a good television show, going shopping with friends, or hanging out with a fam-

ily member, such as moms, sisters, or cousins, were some of the other reasons girls chose not to participate in physical activities. For example,

there's times I don't think I can do like more stuff, so I don't really try as much that I should. Like if I don't really think that I could . . . run like more than, you know, somebody else, so I wouldn't try as hard. Like I guess I don't think more of myself. (Seventh grade girl)

Another barrier for girls was protective parents. Both adolescent girls and boys shared stories about girls who were not allowed to play sports because their parents were afraid they would get hurt. Additionally, parental beliefs that certain activities were only "guy sports" kept girls from being more active. The following quotation highlights this theme:

My brother's friend . . . she wanted to race snowmobiles and her dad would only let her if she liked covered up her whole face with a mask and like she couldn't go out of their trailer until it was time for the race. So nobody saw her cause her dad didn't think it was a sport for girls. (Group of eighth grade boys)

Other sources of physical activity barriers identified by adolescent girls and boys included lack of transportation, other girls' negative behaviors, limited opportunities or availability, reactions from friends, and costs or fees associated with activities. Only adolescent girls discussed a lack of time as a barrier to being physically active.

Perceptions of Motivators for Girls to Be Physically Active

A majority of adolescent girls named family to be the most positive influential factor in their decisions to be physically active. As shown in Figure 2, about 85% of the girls identified family as the most influential factor in their decisions to be physically active. Adolescent girls were articulate in explaining how a family member influences them to be active. For some, it was motivating to have older brothers initiate physical activity with them. For example,

I could be sitting down doing nothing watching the TV. [Then] they [will] say "come on we need another person to play basketball." They know they're going to beat me. They just want me to come play. So they say "come on, come on," and they keep bothering me. So I just get up and go play with them. (Seventh grade girl)

Verbal encouragement, active participation, and support from parents also emerged as an important theme. The following quotation illustrates this theme:

Well, like, if I'm watching TV, [my mom will] say, come on let's go on the levee, and we'll run, and if I start to get tired, she be like, you know, you can do it and you're going to make it, and she brings water and stuff in. She tells me I'm doing good . . . I'm getting better at it, and she encourages me a lot. (Seventh grade girl)

More than half of the boys participating in the focus group discussions talked about ways parents could increase adolescent girls' physical activity levels. However, their comments on the parental role were strikingly different from adolescent girls' comments. Whereas girls spoke of verbal encouragement, active participation, and role-modeling

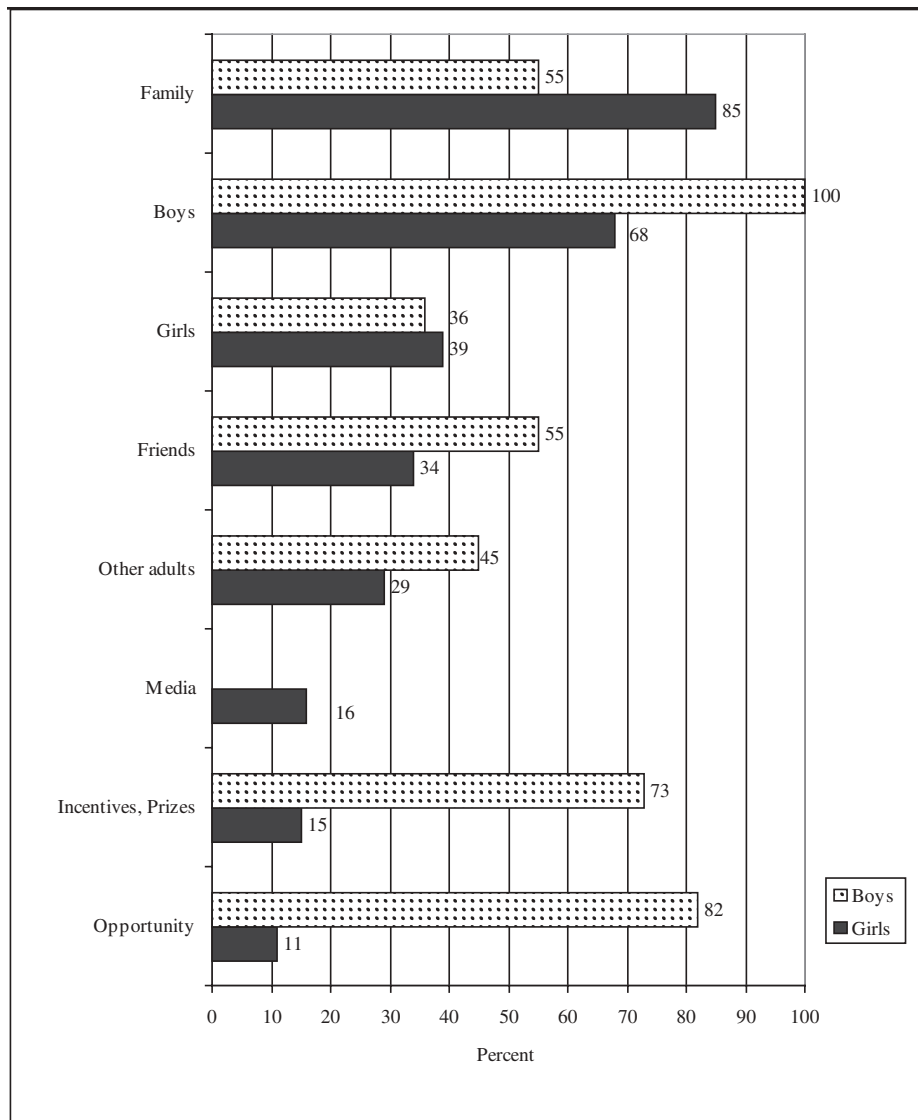


Figure 2. Factors that influence adolescent girls to be physically active by gender.

provided by parents, boys suggested that parents could enforce punishment as a motivator for girls who were not physically active. The following quotation illustrate this theme:

I think that if they just got allowances, and they don't want to do physical activity, tell them like, they mom said they was going to take away their allowances or something. (Group of seventh grade boys)

Boys were identified as a main motivator by 68% of the girls interviewed and in every boy's focus group (100%). Both adolescent girls and boys said that boys were extremely influential in girls' decisions to be physically active. From the girls' perspectives, boys

provided motivation and support to be active. The girls talked about their behaviors around boys:

I feel like more like showing off, like . . . maybe I can get his attention if I do something. (Seventh grade girl)

Both adolescent girls and boys described situations where boys encouraged girls to be active. These included playing scrimmages and running with girls. Some boys offer girls verbal encouragement. For example,

well, the boys I hang with, they encourage you, they're like "come on play on our team" or you know, that's how the boys here, some of them are. They're like "play on our team" or you know, "go play." . . . I think the boys, they're cool. (Eighth grade girl)

As a form of verbal encouragement, boys also used teasing to motivate girls. For example, boys said they call girls names, make fun of them, and make them feel bad as ways to make them more active.

At times, boys tease girls about not being able to play a particular sport. However, as one girl said, "[when] they'll tease you and say that you can't do it . . . it'll make you want to try harder" (Eighth grade girl).

One prominent theme that emerged from these discussions was that girls wanted boys to think they were strong, confident, and capable. As one girl said,

well, I'd say I like to be physically active around boys 'cause it, you know, makes them think I'm stronger and I'm not this little prissy girl who thinks that she has to wear makeup. I'm not that type of girl, you know. I'm pretty tough myself. (Seventh grade girl)

Incentives were another strategy motivating girls to be physically active. Both adolescent girls and boys spoke of encouraging girls to participate in sports with prizes. Rewards, including mall certificates, money, and medals, were some of the incentives mentioned by girls. Most boys said, "If there's money, they'll do it" (Group of eighth grade boys). They also agreed with certificates and rewards for girls but offered their own incentives to motivate girls. For example,

[tell girls] if you score it correctly and you do it really good and you're like the best out of everyone, you get a certificate of \$10 off any clothes [in the mall]. (Group of seventh grade boys)

Providing opportunities for girls to be active resulted from discussions with adolescent girls and boys. Approximately 11% of the girls said that to get girls more active, different opportunities should be available. Although the type of activity was important (i.e., a dance session over a golf game), girls explained that it was the environment that affected girls' decisions to participate. Personal interests, comfort levels, and having fun were some of the factors shaping girls' physical activity choices. The girls described what physical activity opportunities should be with the following quotation:

Find something that they would be interested in and ask questions if they are interested in it. If they say they're interested in it, make them feel comfortable about doing it. (Eighth grade girl)

In the focus groups, boys thought having special activities just for girls at schools or giving girls their own sports or leagues would encourage girls to be active. Moreover, boys said having new opportunities would help girls try all sorts of activities and give them a chance to try activities they may not have done before. For example,

they should get somebody to make like a sport that's mainly for girls. Like some, they have football [which is] mainly for boys. If they had one mainly for girls, then they'd like have like a lot more girls [who would] want to play the sports. (Group of seventh grade boys).

In general, adolescent girls and boys discussed other girls, friends, and adults (other than family) as additional factors that motivate them to be physically active. However, only adolescent girls mentioned television shows with sports teams or shows that portrayed girls being active as a motivator for girls.

DISCUSSION

This study used qualitative approaches to explore adolescent girls' and boys' perceptions of girls' physical activity behaviors. The findings revealed more similarities than differences in themes described by boys and girls. Both adolescent boys and girls talked about physically active girls as being tomboys or girls who played too aggressively. Adolescent girls were more likely to hold favorable views of active girls, whereas many boys appeared uncomfortable by girls who were physically active.

Both boys and girls mentioned adolescent boys, girls themselves, and family as barriers for physical activity in girls. Boys were seen as extremely influential in shaping girls' views and beliefs about physical activity. Girls thought that the taunting, name calling, and teasing from boys were important reasons they were not more physically active. In contrast, boys were more likely to talk about girls posing restrictions on their own physical activity behaviors. Lack of motivation, being shy, and competing interests appeared to be some of the reasons that kept girls from being more active. Other physical activity barriers for girls included time spent on homework and chores, limited physical activity opportunities, and costs. Such findings are parallel to other published research that found peer and family relationships, lack of opportunity, self-concept, and access problems to be barriers for participation (Culp, 1998).

A major focus of this study was to identify the range of factors that might affect adolescent girls' physical activity behaviors. Although barriers tend to be a primary focus in most interventions (Brett et al., 2002), it is important to recognize those factors that facilitate, or that could be used to facilitate, improvement in physical activity behaviors. Several factors emerged that served as motivators for girls to be active. For example, adolescent girls overwhelmingly identified family to be the most influential factor in their decisions to be physically active. Verbal encouragement, support, and active participation from family members helped girls be physically active. These findings are supported by other studies that also found that adolescent girls tend to be more active when their parents and siblings are active and when parents support their participation in physical activities (McGuire et al., 2002; Moore et al., 1991; U.S. Department of Health and Human Services, 1996). Both adolescent girls and boys in this study believed that girls also receive positive peer influence from boys, other girls, and friends, suggesting that adolescent girls' perceptions and attitudes toward physical activity are rooted in family, peers, school, and the community.

Limitations

The limitations of this study include small sample sizes and potentially biased responses. Both of these factors influenced the data collection, analysis, and ultimately the study's findings. Similar to other qualitative research, the number of adolescent girls and boys participating in interviews and focus groups was small. In addition, teacher's subjective judgment of students' physical activity levels may have resulted in a less representative sample. As a result, it is difficult to discern whether potential differences between particular groups and contradictions are tied to gender or cultural orientations. Grieser et al. (2006) present results of the ethnic differences seen among adolescents' perceptions. Secondly, bias in the results of interviews and focus groups may be limiting. Although the study protocol assured participants of confidentiality and their responses appear to be quite candid, we cannot exclude the possibility that some respondents may have provided socially desirable responses. Adolescent girls and boys are undergoing maturation and discussing issues concerning puberty, body image, and relationships with peers may have been sensitive. However, given that relatively little is known about what adolescent girls and boys think about these topics, this qualitative study offers a valuable approach for beginning to understand these complex issues.

Implications for Practice and Future Research

An important issue for both researchers and practitioners is how to maintain physical activity levels of children during adolescence and into adulthood. Among children and adolescents, a substantial proportion of the population does not meet recommended levels of participation in physical activity. Moreover, the consequences of a sedentary lifestyle by a substantial proportion of the adolescent populations are grave. Physically inactive adolescents are at increased risk for many chronic diseases later in their lives, including heart disease, stroke, colon cancer, diabetes, and osteoporosis.

From this study, a number of facilitators and social and environmental barriers were identified that influence physical activity behaviors of adolescent girls. Identification of factors that explain participation in physical activity is useful for health professionals in all practice settings to design intervention programs to increase participation in a variety of structured and independent physical activities. Young et al. (2006) present examples of how the results from the formative assessment affected the design of the TAAG interventions. These findings helped expose additional areas of focus for TAAG and other physical activity studies with adolescent girls. For example, a strong emphasis could be placed on enhancing adolescent girls' beliefs about their own self-efficacy to participate in physical activity and strengthening their confidence to overcome barriers to participate in school sports and other physical activities. The results of the present formative assessment suggest that developing successful physical activity opportunities for adolescent girls should include verbal persuasion, modeling, and social support from family and peers. It is important to further explore family influences on adolescent girls' physical activity behaviors from the perspective of other family members, including fathers, siblings, and cousins. Furthermore, given the strong influence of peers in this population, the role of peer leadership in adolescent participation in physical activity could be explored and tested through physical activity intervention studies.

The somewhat conflicting role of boys was also highlighted in this research. Adolescent boys are a fairly common source of barriers and motivation for girls and could be an appropriate target for intervention. On one hand, the teasing, taunting, and name calling

from boys discouraged many girls from being active. At the same time, many other girls used the verbal discouragement and competition as a source of motivation. Girls wanted to keep up with boys, and they wanted to prove boys wrong. Future studies will need to determine the most effective strategies for addressing boys' behaviors regarding programs for girls.

Understanding differences in beliefs and perceptions among adolescent girls targeted for an intervention study is an important factor to ensure that the intervention strategies will be both meaningful and relevant for adolescent girls. It also increases the likelihood that the interventions developed will be successful. This study is a useful beginning for examining the social and behavioral aspects of physical activity for adolescent girls. Data such as these can help researchers determine issues to target in future intervention studies with adolescent girls. In this case, additional research is needed to learn how resources can be invested to develop physical activity programs that are culturally sensitive and age appropriate for adolescent girls. Further research can assess whether certain physical activity interventions are more effective than others in motivating girls to be active. For example, should physical activity programs incorporate a family intervention component in addition to or instead of a peer component? Are physical activity opportunities that emphasize building skills and confidence in girls more effective in encouraging girls to be active? Are physical activity opportunities that emphasize social aspects more efficacious? Knowing the answers to these questions would help guide interventions to change girls' physical activity behaviors.

In-depth formative assessment methodology can be a valuable tool for understanding the dynamics of factors affecting physical activity behaviors of adolescent girls. These methods provide contextual information (e.g., family dynamics, values, and constraints) largely missing from quantitative research. Formative data can help researchers create a multidimensional model that places adolescent girls within their family, school, and community context. Insights into factors that influence adolescent girls' decisions to be physically active, their values, what constraints they truly face, and what factors motivate them to be active can be extremely valuable in designing physical activity interventions. Such interventions will ultimately make important contributions to improving the health of adolescent girls.

References

- Brett, J. A., Heimendinger, J., Boender, C., Morin, C., & Marshall, J. A. (2002). Using ethnography to improve intervention design. *American Journal of Health Promotion, 16*(6), 331-340.
- Centers for Disease Control and Prevention. (1997). Guidelines for school and community programs to promote lifelong physical activity among young people. *Morbidity and Mortality Weekly Report, 46*(RR-6), 1-36.
- Centers for Disease Control and Prevention. (1999). *Physical education. From CDC's 1994 school health policies and program studies* (fact sheet). Atlanta, GA: Author.
- Centers for Disease Control and Prevention. (2001). Increasing physical activity: A report on recommendations of the task force on community preventive services. *Morbidity and Mortality Weekly Report, 50*(RR18), 1-16.
- Culp, R. H. (1998). Adolescent girls and outdoor recreation: A case study examining constraints and effective programming. *Journal of Leisure Research, 30*(3), 356-379.
- Garcia, A. W., Broda, M., Frenn, M., Coviak, C., Pender, N. J., & Ronis, D. L. (1995). Gender and developmental differences in exercise beliefs among youth and prediction of their exercise behavior. *Journal of School Health, 65*, 213-219.

- Gittelsohn, J., Steckler, A., Johnson, C., Pratt, C., Grieser, M., Pickrel, J., et al. (2006). Formative research in school and community-based health programs and studies: @0147State of the art” and the TAAG approach. *Health Education & Behavior*, **PE: PLS INSERT VOLUME NUMBER, PE: PLS INSERT PAGE NUMBERS.**
- Godin, G., & Shephard, R. J. (1986). Psychosocial factors influencing intentions to exercise of young students from grades 7 to 9. *Research Quarterly for Exercise and Sport*, *57*, 41-52.
- Grieser, M., Vu, M. B., Bedimo-Rung, A. L., Neumark-Sztainer, D., Moody, J., Young, D. R., et al. (2006). Physical Activity Attitudes, Preferences, and Practices in African American, Hispanic, and Caucasian Girls. *Health Education & Behavior*, **PE: PLS INSERT VOLUME NUMBER, PE: PLS INSERT PAGE NUMBERS.**
- McGuire, M. T., Hannan, P. J., Neumark-Sztainer, D., Cossrow, N., & Story, M. (2002). Parental correlates of physical activity in a racially/ethnically diverse adolescent sample. *Journal of Adolescent Health*, *30*, 253-261.
- Moore, L. L., Lombardi, D. A., White, M. J., Campbell, J. L., Olshan, A. F., & Ellison, R. C. (1991). Influence of parental physical activity levels on activity levels of young children. *Journal of Pediatrics*, *118*, 215-219.
- Sallis, J. F., & Hovell, M. F. (1990). Determinants of exercise behavior. *Exercise and Sports Science Review*, *18*, 307-330.
- Sallis, J. F., Simons-Morton, B. G., Stone, E. J., Corbin, C. B., Epstein, L.H., Faucette, N., et al. (1992). Determinants of physical activity and intervention in youth. *Medical Science Sports Exercise*, *24*, S248-S257.
- Tappe, M. K., Duda, J. L., & Ehrnwald, P. M. (1989). Perceived barriers to exercise among adolescents. *Journal of School Health*, *59*, 153-155.
- U.S. Department of Health and Human Services. (1996). *Physical activity and health: A report of the surgeon general*. Atlanta, GA: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion.
- U.S. Department of Health and Human Services. (1999). *Physical activity and health: A report of the surgeon general*. Atlanta, GA: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion.
- U.S. Department of Health and Human Services. (2000). *Healthy People 2010: National health promotion and disease prevention objectives*. Atlanta, GA: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion.
- Young, D. R., Johnson, C. C., Steckler, A., Gittelsohn, J., Saunders, R., Saksvig, B. I., et al. (2006). Data to action: Using formative research to develop intervention programs to increase physical activity in adolescent girls. *Health Education & Behavior*, **PE: PLS INSERT VOLUME NUMBER, PE: PLS INSERT PAGE NUMBERS.**