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SOCIAL SUPPORT FOR PHYSICAL ACTIVITY FOR HIGH SCHOOLERS IN RURAL APPALACHIA

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SOCIAL SUPPORT FOR PHYSICAL ACTIVITY FOR HIGH SCHOOLERS IN RURAL APPALACHIA

By

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ABSTRACT

The purpose of the present study is to conduct a secondary qualitative analysis to examine parent, teacher, and high school adolescents' perceptions of social support for physical activity (PA) for high schoolers in Southern Appalachia. Social support for PA is linked to higher rates of PA participation in adolescents. Parents, siblings, and peers provide key sources of support. Social support for PA may be even more important in under-resourced communities such as Appalachia, where geographic, economic, and environmental barriers negatively impact PA engagement. During 2013-2014, focus groups and semi-structured interviews were conducted with parents of adolescents (n=39), high school teachers (n=38), and high school students (n=21) in six counties across rural Southern Appalachia as part of a grant-funded qualitative study to assess parental involvement strategies in school-based adolescent obesity prevention programs. We conducted a secondary analysis of the dataset from this study, focusing specifically on participants' responses about family and peer supports for PA for adolescents. We used thematic analysis to analyze the data and develop overall themes. Four categories of social supports for PA emerged: instrumental, conditional, motivational, and informational supports. Instrumental supports included providing transportation, paying fees, enrollment in sports, and access to PA equipment at home. Performing PA with adolescents, modeling, watching/supervising, and prioritizing PA emerged as conditional supports. Several motivational supports were also identified: encouragement over life course, force, and admiration of people who are active. Participants also identified key informational supports including discussion by parents/teachers about how to be physically active, its importance and benefits and general advice/information. While some supports were widely available (eg., equipment and encouragement), others such as transportation were limited in availability. Moreover, students identified being made fun of by peers when engaging in PA together as a constraint. Differences emerged in how the three groups conceptualized and attached meaning to the types of supports. While a range of social supports for PA exist for high schoolers in Southern Appalachia, supports emphasized by students, parents, and teachers vary. These findings can be used to inform program and practice in PA research in rural Appalachia.

Introduction

Adolescent obesity is a national epidemic. In the United States, 20.5% of adolescents are obese (Ogden, Carroll, Fryar, & Flegal, 2015). Research on the factors affecting physical activity levels highlights the importance of social support, which has been linked to higher rates of physical activity among adolescents (Duncan, Duncan, & Strycker, 2005). Social support provided by parents, siblings, and peers falls into several categories identified by the literature: instrumental, conditional, motivational, and informational (Beets, Cardinal, & Alderman, 2010). Less is known about the role of social support for physical activity for high schoolers in rural Southern Appalachia, an under-resourced region that is characterized by disproportionately higher rates of adolescent obesity (26.6%) and physical inactivity when compared nationally (Wang et al., 2014; CDC, 2013). The present study is a secondary qualitative analysis examining parent, teacher, and high school adolescents' perceptions of social support for physical activity for high schoolers in Southern Appalachia.

Study Purpose

The purpose of the present study is to conduct a secondary qualitative analysis to examine parent, teacher, and high school adolescents' perceptions of social support for physical activity for high schoolers in Southern Appalachia.

Objective

The objective of this study is to examine the perceptions of social supports for physical activity for higher schoolers among parents, teachers, and students in Southern Appalachia using qualitative data collected as part of a Tennessee Board of Regent (TBR) funded project.

Researcher Assumptions

I conducted a secondary data analysis looking specifically at social support for physical activity for high-schoolers in Southern Appalachia. The data are from a qualitative study that explored parental engagement strategies in school-based adolescent obesity prevention in Southern Appalachia. Specifically, the research team comprised of faculty at East Tennessee State University (ETSU) was interested in knowing how to engage parents in physical activity and nutrition programming. I conducted a thematic analysis of the focus group interview data to answer the following research question: What is the perception of social supports for physical activity for high schoolers in Southern Appalachia?

Qualitative research is a form of naturalistic inquiry that allows researchers to investigate issues with greater depth and detail when compared to quantitative methods (Patton, 2002). In the present study, participants were asked open-ended questions regarding their perceptions of social support for physical activity for adolescents in Southern Appalachia. Public health issues, such as this, are deeply embedded within their cultural contexts and are better understood using qualitative methods (Tolley, Ulin, Mack, Robinson, & Succop, 2016). Braun and Clarke (2006) recommend using reflexive journaling prior to beginning qualitative analysis to unearth any assumptions that I, as the researcher, may hold about the topic and to identify how my values and life experiences shape my understanding of the phenomena of interest.

My interest in the phenomena under investigation is embedded in my academic and professional interests and ties to Appalachia. I am currently an undergraduate student studying Health Sciences and Public Health at ETSU, a university located in South Central Appalachia. Residents in our region, and Appalachia as a whole, are disproportionately affected by chronic diseases such as stroke, heart disease, and obesity (Halverson, Barnett, & Casper, 2002). Poor

dietary behaviors and physical inactivity are primary risk factors for the development of these chronic diseases (Center for Disease Control and Prevention [CDC], 2015). In Appalachia, for example, only 25.4% of adolescents were physically active for sixty minutes per day for the past seven days (*State Nutrition, Physical Activity, and Obesity Profile*, 2016). This rate is much lower when compared to the rest of the U.S. (CDC, 2015).

Furthermore, much of Appalachia is rural (eg., 42% versus 20% nationally) (The Appalachian Region, n.d.) and the individuals that live in these communities are often geographically isolated, medically underserved, and economically distressed (Dalton, Schetzina, Pfortmiller, Slawson, & Frye, 2010). Communities, including the schools where adolescents spend a majority of their time, have fewer resources to provide programming and services (Cornish, Askelson, & Golembiewski, 2016; U.S. Department of Agriculture [USDA], Food and Nutrition Service, 2016) to address the high rates of adolescent obesity in the region (*Smarter Lunchrooms*, 2016).

Central to this issue is the importance of the built environment, eg., "the notion that different environmental contexts are associated with features that channel people toward positive or negative health behaviors," (Slack, Myers, Martin, & Heymsfield, 2014, pp. 869). High rates of obesity and physical inactivity have been linked to the built environment (Slack et al., 2014). Compared to urban communities, which typically have greater access to sidewalks, parks, street lights, and walkable destinations, rural regions lack access to these important aspects of the built environment. Consequently, rural communities have higher rates of physical inactivity when compared to their urban counterparts (Slack et al., 2014).

Many of my peers at ETSU call Appalachia their home. Many of these same students are the first in their family to attend college. They live in the surrounding communities in Northeast

Tennessee where they are confronted with issues of rurality on a daily basis. It is my opinion that in some of these rural counties, access to health education and physical activity opportunities may be limited. Additionally, I believe the school and home environment influence health behaviors such as engagement in physical activity. As a result, my Appalachian peers at ETSU may place less importance on being healthy and physically active when compared to others their age who have greater access to health promoting resources in their schools and communities. Similarly, adolescent youth in Appalachia may face poor health outcomes due to issues related to rurality and the built environment.

I took an interpretivist approach in my analysis of the data, which means I value the importance of the subjective experiences or "lived experiences" of the study participants (Ponterotto, 2005, pp. 129). Interpretivist philosophy holds that reality is socially constructed in the mind of the individual, creating multiple realities based on the situation, person, and social context (Guba & Lincoln, 1994). Thus, as I read the focus group transcripts, understanding how participants perceive the world around them was a critical step in investigating the phenomena of interest. In my opinion, the concept of 'rurality' played an important role in shaping the participants' attitudes regarding social support for physical activity for adolescents. It was my hope that the findings from this secondary qualitative data analysis could be used to develop culturally-relevant physical activity supports that address key contextual issues within the participants' lived experiences.

Through both my academic studies and life experiences, I have learned to value good health and health enhancing behaviors. My academic focus in the Health Sciences and Public Health has broadened my understanding of the role of behavioral risk factors, health promotion, and health education in improving health outcomes.

In addition to my academics, the importance of adopting a healthy lifestyle was reinforced throughout my childhood. Although I participated in physical education classes at school, my family played a critical role in engaging me in regular physical activity. My family modeled a healthy lifestyle by providing access to gym memberships, home exercise equipment, and opportunities for sport participation. This influence was pivotal in the academic choices of both my sister, who received masters level training in exercise physiology, and me.

The role of assumptions, values, and life experiences on how I read the data.

These data are comprised of focus group interviews with parents, teachers, and high-school students in Southern Appalachia regarding their perceptions of physical activity access and supports in the home, school, and community. I used Braun and Clarke's (2006) methodology of thematic analysis to analyze the data. Braun and Clarke's technique to thematic analysis consists of several steps including immersion in the data by reading and re-reading, coding, searching for and reviewing themes, defining the themes, and writing up results (Braun & Clarke, 2006). Thematic analysis is considered a flexible qualitative analytic approach that can be used "within a range of theoretical frameworks," (Braun & Clarke, 2006, pp. 85) to understand the research participant's reality, or social context (Ponterotto, 2005). As such, it allows the researcher to search and examine patterns within the data and to "construct" themes; yet, also seeing the data from the participant's perspective (Braun & Clarke, 2006). This approach correlated well with my interpretivist approach to analyzing the data in that the researcher plays a central role in revealing hidden meanings in the data. Moreover, this was an appropriate methodology for analyzing the focus group interviews since ipants' worldview played an important role in uncovering their perceptions of social support for physical activity for adolescents in Southern Appalachia.

An important consideration in qualitative research is the presence and effect of the researcher's subjective biases. As I read the focus group interview data, it may unearth my own biases regarding the concepts of health and physical activity. I value good health and health promoting behaviors such as engagement in physical activity. These values may affect how I interpret participant's responses related to social supports for physical activity. I was raised in a suburban area with greater access to supports for physical activity. My parents had good jobs and we enjoyed a comfortable lifestyle. My parents also had the time, resources, and finances needed to promote healthy habits, such as physical activity and proper nutrition, among me and my sister. Health and physical activity were not "luxuries;" rather, they were viewed as 'nonnegotiables' and integrated into our daily life. These values and life experiences may limit my understanding of rural contexts and its influence on social support for physical activity. Given this awareness of my own subjective biases, I will aim to *bracket* my values, attitudes, and beliefs by "consciously acknowledge[ing] those values" and immersing myself in the data as recommended by Braun and Clarke (2006).

Secondly, I am a novice as it relates to research and analysis of any kind. My inexperience may further limit my ability to analyze the focus group interview data. To address this potential weakness, I will work with a mentor throughout this process to ensure that I produce quality results. My mentor has expertise in qualitative research and was the primary investigator on the study.

BACKGROUND

Adolescent obesity has become a nationwide epidemic. In the U.S., 20.5% of adolescents are obese (Ogden, Carroll, Fryar, & Flegal, 2015). Physical activity is especially important in the prevention of obesity, promoting psychological well-being, and building healthy bones and muscles in adolescents (*Physical Activity Guidelines Advisory Committee Report,* 2008). The 2008 Physical Activity Guidelines for Americans recommends that adolescents perform at least 60 minutes of daily physical activity (US DHHS, 2008). Yet, fewer than one in three U.S. high school adolescents (27.1%) meet these recommendations (Kann et al., 2015). This is alarming since evidence suggests that physical inactivity during adolescence is likely to track into adulthood (Telama, 2009), increasing one's risk of developing obesity-related chronic diseases (eg., diabetes, high blood pressure, high cholesterol, asthma, and arthritis) (Daniels et al., 2005; Dietz, 2004; Institute of Medicine, 2004).

Extensive research has been conducted on the factors affecting physical activity participation in adolescents. Social support is one factor that is linked to higher rates of physical activity involvement among adolescents (Duncan, Duncan, & Strycker, 2005). Parent, sibling, and peer social support are associated with increased physical activity behavior in adolescents (Laird, Fawkner, Kelly, McNamee, & Niven, 2016; Mendonca, Cheng, Melo, de Farias Junior, 2014; Pender, Sallis, Long, & Calfas, 1994). For example, Duncan and colleagues (2005) found that adolescents who perceived greater support for physical activity from parents, siblings, and particularly friends had the highest rates of physical activity. Another study found that when compared to peer counterparts who did not maintain physical activity, adolescents girls who maintained physical activity reported higher rates of parental social support (Krahnstoever Davison & Jago, 2009). Additionally, the findings of a meta-analysis of the literature suggest a

correlation between adolescent physical activity and parental support (Yao & Rhodes, 2014).

The literature identifies several types of social support: instrumental (eg., financial support, transportation, equipment), conditional (eg., watching/supervising, modeling), motivational (eg., encouragement) and informational supports (eg., communications) (Beets, et al., 2010; Laird et al., 2016). The findings of a study examining supports for under-served adolescents highlighted the role of parental motivational and instrumental support for physical activity (Wright, Wilson, Griffin, Evans, 2010). Similarly, the literature identifies associations between parental modeling/logistic [instrumental] support and maintenance of physical activity throughout adolescence (Krahnstoever Davison & Jago, 2009; Dowda, Dishman, Pfeiffer, Pate, 2007).

While social support has been examined extensively in the literature, less is known about the role of social support for physical activity for high school adolescents in rural Southern Appalachia. A previous study examining predictors for physical activity found that social support was the strongest predictor for physical activity in adolescents in the region (Walker, 2016). It is important to expand upon this information by studying the role of social support plays in physical activity engagement in Southern Appalachia for several reasons. Southern Appalachia is characterized by disproportionately higher rates of adolescent obesity when compared to the U.S. For example, Wang et al. (2014) found that 26.6% of high school adolescents in Southern Appalachia were obese. The region is also characterized by fewer environmental supports for physical activity when compared to urban residents (Slack et al., 2014). Not surprisingly, higher rates of physical inactivity have been reported among adolescents in the region (CDC, 2013). The purpose of the present study is to conduct a secondary qualitative

analysis to examine parent, teacher, and high school adolescents' perceptions of social support for physical activity for high schoolers in Southern Appalachia.

METHODS

This study is a secondary analysis of data collected from a larger study. During 2013-2014, focus groups and semi-structured interviews were conducted by trained facilitators among a purposive sample of parents of adolescents (n=39), high school teachers (n=38), and high school students (n=21) in six counties across rural Southern Appalachia as part of a grant-funded qualitative study to assess parental involvement strategies in school-based adolescent obesity prevention programs. A moderator's guide containing open-ended questions was developed and piloted among a small sample of students and parents. Feedback from the pilot study was used to modify the moderator's guide (Appendix 1).

Participants were asked questions about students' health, eating and physical activity behaviors, and ways to involve parents: (1) What do you think are the main barriers to physical activity that high schoolers encounter (cost; availability of parks in the community around the school; school; time; stigma)? (2) How can we get around these barriers? (3) What role can families play in encouraging physical activity among high schoolers (describe physical activity opportunities; describe ways families play together; others)? (4) How does the high school encourage physical activity among high schoolers (options that are available; school policies; state curriculums; after school programs; family involvement; Coordinated School Health, School Nurses, Wellness Teachers; local child health providers or pediatricians)? The focus groups and interviews were audiotaped and transcribed verbatim. Parents and teachers received a $40.00 honorarium for participating in the study; students received $20.00 for their participation.

In the present study, we analyzed data from the focus groups. For secondary data analysis of the data, Braun and Clarke's (2006) methodology of thematic analysis was used. Braun and Clarke's methodology consists of several steps including immersion in the data by reading and

re-reading, coding, searching for and reviewing themes, defining the themes, and writing up results (Braun & Clarke, 2006). A coding framework was developed prior to beginning the thematic analysis (Fereday & Muir-Cochrane, 2006). Development of the initial coding framework was informed by a review of the literature on social support for physical activity and themes were organized into four broad categories as described by Beets, Cardinal and Alderman (2010) in a recent systematic review on social support.

Analysis of the data were guided by the coding framework to identify themes (Crabtree & Miller, 1999; Fereday & Muir-Cochrane; 2006). Additionally, we inductively coded for themes that emerged from the data (Boyatzis, 1998). Thematic analysis was first conducted separately for the parents, teachers, and students and then common themes between the three groups were synthesized to identify themes overall. A similar approach has been used in previous studies (Gellar et al., 2012; Power, Bindler, Goetz, & Daratha; 2010).

RESULTS

Findings from the secondary qualitative analysis are listed below (Tables 1 to 4). Parents, siblings, and peers were identified as important sources of support for physical activity. The findings are grouped into four categories of social supports for physical activity for adolescents: instrumental, conditional, motivational, and informational. Unless stated, these findings represent the perceptions of parents, teachers, and students collectively.

Instrumental

Four types of instrumental supports emerged: transportation, fees, enrolling child in physical activity/sports, and physical activity equipment at home. Many parents provide access to transportation to their child's sporting events at schools and local recreation leagues; however, participants also noted that some parents are unable to provide transportation due to geographic and time-related barriers. Teachers and students also mentioned that some adolescents have parents/guardians with disabilities that limit their ability to provide transportation for the adolescent. In these situations, another parent may be willing to provide the adolescent with transportation to the event. Overall, parents were less likely to provide transportation to parks due to time constraints and lack of accessibility.

Fees emerged as the most robust theme. If financially able, parents were willing to pay their child’s sports fees. Parents and teachers remarked, however, that many families simply cannot afford these fees. Community resources do exist to aid under-resourced families. For examples, churches and physician’s offices will sponsor fees, the cost of physicals, and uniforms/equipment for the adolescent. While many parents allowed their child to enroll in organized sporting events at schools or recreation leagues, cost of fees and limited transportation were cited by participants as barriers to enrollment. Lastly, many adolescents have access to

exercise and physical activity equipment in their homes. Examples included weights, sports and exercise equipment, and games. Participants also noted the ability to participate in activities at home that do not require equipment. Some teachers cited that they provide uniforms to students during physical education classes and arrive early to school so the students can access the gymnasium for physical activity.

Conditional

Performing physical activity with adolescents, modeling, watching/supervising, and prioritizing physical activity emerged as conditional supports. Participants reported that families often engage in activities such as hiking, sports, and playing outside together. Participants highlighted the importance of non-competitive and family-oriented activities (eg., community/school events, 5ks) in increasing peer, siblings, and families performance of physical activity together. Parental inactivity, body image issues among students, and peer bullying were cited as barriers to physical activity engagement among adolescents. Most notably, peer pressure, bullying, and mocking were described by students and teachers as major concerns. Students are often made fun of for not being athletic. This type of situation will occur during physical education classes or intramurals. In most cases, the bullying would occur by students who participate in competitive sports.

Examples of parent/teacher modeling included walking on the school track, playing sports, and going to the gym; however, it was noted that some parents consider physical activity to be unimportant. Parents also watch/supervise their child's sporting events. However, parental supervision of adolescents at parks/gyms and sporting events may be limited due to factors described previously. Safety issues in conjunction with lack of supervision further contribute to lack of physical activity participation at parks. Lastly, prioritization of physical activity emerged

as an important theme. Participants noted the important role teachers play in leading activity-focused clubs and asking students about their physical activity habits regularly and the role parents play in emphasizing participation in sports. On the other hand, however, parents and adolescents may prioritize other activities, such as work, schoolwork, and technology use over physical activity.

Motivational

Several motivational supports were identified: encouragement, force, and admiration of people who are active. Participants cited the important role that parents play in encouraging their child to be physically active, even when the child is young. In fact, many parents do encourage their children to be physically active, emphasizing participation in sports, assigning chores, and even forcing their children to "go outside and play" when necessary. While this is true, it was unclear whether most parents instill these values early on when the child is young. Parents and teachers stated that teachers and coaches encourage physical activity by creating fun, non-competitive physical activity opportunities, mentoring students about physical activity, and portraying physical activity as "fun".

Students described encouraging their peers, especially less athletic peers, when performing physical activity during sports or physical education classes. However, the theme of bullying reemerged during these parts of the discussion. Students noted feeling intimidated due to the presence of bullying/mocking by their peers who are involved in competitive sports. According to the students, this situation is further exacerbated when teachers/coaches show favoritism towards athletic students and limit free play to competitive sports in physical education classes.

Parent and teacher force were also cited as supports for physical activity. Force encompasses the notion that parents and teachers require children to engage in physical activities in the home and in the classroom, eg., assignments involving physical activity. Both parents and teachers held the opinion that it is the parents' role to force adolescents to engage in physical activity, while the teachers' role was limited to encouragement. Lastly, admiration of people who are physically active emerged as an important source of social support for physical activity. Parents noted the impact that teachers have on their children's lives, stating that children admire teachers who are physically active. There was also a negative aspect to peer admiration among adolescents who do not participate in organized sports. Teachers and students both stated that these students may hold negative perceptions towards more active, athletic students due to intimidation or bullying by athletes. Some students regarded their peers as being obsessed with sports or taking physical education too seriously. Participants emphasized the role of non-competitive, fun activitites in increasing adolescents' participation in physical activity.

Informational

Participants also identified key informational supports including discussing the importance/health benefits of physical activity, how to be physically active, and general advice/information. Examples of discussing the importance/health benefits were stated by teachers, including teachers and coaches assigning required physical activity assignments and using class time (regular classes, not P.E.) to discuss and participate in physical activity. Teachers stated that students and parents need more education on the importance of physical activity and that this education should occur earlier in a child's life. Examples of giving advice/information were teachers sharing information about community resources for physical activity, such as local gyms, parks, and rec leagues, and parents showing adolescents tools to

track fitness (eg. phone applications). Teachers and students noted the lack of knowledge about physical activity among families and the need to access more information.

DISCUSSION

Social support has been identified as a possible correlate to higher levels of physical activity in high school adolescents. A previous study examining predictors for physical activity found that social support was the strongest predictor for physical activity in adolescents in Southern Appalachia (Walker, 2016). The present study was a secondary qualitative analysis of focus group interviews with parents, teachers, and adolescent students in rural Southern Appalachia. The findings from this study provide additional insight about the types of social supports available for physical activity for high school adolescents in the region.

Four categories of social supports for physical activity emerged: instrumental, conditional, motivational, and informational supports. Instrumental supports included providing transportation, paying fees, enrollment in sports, and access to physical activity equipment at home. Performing physical activities with adolescents, modeling, watching/supervising, and prioritizing physical activity emerged as conditional supports. Several motivational supports were also identified: encouragement, force, and admiration of people who are active. Participants also identified key informational supports including discussion by parents/teachers about how to be physically active, its importance and benefits and general advice/information. While some supports were widely available (eg., equipment and encouragement), others such as transportation were limited in availability. Moreover, students also described the negative impact that bullying/mocking had on engagement in physical activity. Differences emerged in how the three groups conceptualized and attached meaning to the types of supports.

The instrumental supports described in this study were consistent with previous findings (Beets, et al., 2010). Lack of transportation has been cited previously as a barrier to physical activity engagement (Davison & Lawson, 2006; O'Dea, 2003). In the present study, this barrier

was associated with time constraints, parental disabilities, and geographic isolation and limited access to parks. Protective supports also emerged such as community resources (eg., churches, physicians' offices) for sponsoring fees, equipment, and other sports-related costs. Participants stated opportunities for physical activity in or around the home that does not require equipment, consistent with the literature (Beets, et al., 2010), but also reported having access to equipment in the home.

Regarding conditional supports, our findings mirror prior research (Beets et al., 2010) and also unearth a novelly identified support – prioritization of physical activity. The importance of the role of peer support when performing activity together has been identified previously (Lowm & Braunschweig, 2008). Students described the negative impact of peer pressure and bullying. Participants additionally highlighted the role of non-competitive physical activity in encouraging physical activity. Youth from higher socioeconomic status (SES) report higher rates of parents watching their games, resulting in higher levels of physical activity (Duncan et al., 2005). This could be due in part to parents having a more flexible work schedule (Beets, et al., 2010). Work-related time constraints emerged as a barrier to parental engagement in the present study, underscoring disparities that may exist across SES levels.

Consistent with prior research (Beets, et al., 2010), encouragement/praise was identified as a key motivational support in the present study. Parental validation and affirmation beginning early in the child's life is critical for developing life long habits such as physical activity engagement (Beets, et al., 2010). Peer-to-peer encouragement, as noted in the present study, is also said to be a primary influencer of activity (Beets et al., 2006). These verbal cues promote adoption of healthy behaviors. Students mentioned encouraging peers, specifically less athletic peers, when engaging in competitive and non-competitive physical activity during physical

education classes and intramural games. Students also described a context which discouraged physical activity engagement: students who were athletes were bullying/mocking less athletic students. These negative prompts are of great concern due to the regions high levels of obesity and low rates of physical activity among adolescents (Wang et al., 2014).

Research is limited on the topic of informational supports for social support for physical activity for adolescents (Beets, et al., 2010). Discussing the importance/benefits of physical activity and how to be active are supports that have been previously described in the literature and are said to be provided by parents, usually at an older age (Thompson et al., 2003; Duncan et al., 2005). In this study, participants noted the importance of discussing how to engage in non-competitive physical activities. Overall, participants highlighted a lack of information and knowledge about the importance physical activity among families in the region.

Limitations

This study was a secondary qualitative analysis, using data collected from a larger grant-funded project. The questions were designed to be general and open-ended. Participants were asked about facilitators and barriers to physical activity among high school adolescents. However, the study did not directly assess social supports for physical activity. This may limit the robustness of our findings as well as their generalizability. Additional research targeting social support for physical activity in rural Southern Appalachia is an important next step. Lastly, I have limited experience analyzing data; however, I was guided by a mentor, who was a key personnel on the primary study.

Conclusions

While a range of social supports for physical activity exist for high schoolers in Southern Appalachia, supports emphasized by students, parents, and teachers varied. The findings from the present study further inform the literature on social support in physical activity within a historically under-represented context in research, eg., rural Southern Appalachia. These findings can be used to inform program and practice in physical activity research in rural Appalachia.

IMPLICATIONS FOR SCHOOL HEALTH

The present study highlights the importance of social support for physical activity for high school adolescents. There may be a need for additional support in underserved populations such as those in rural Southern Appalachia. School personnel can take actions to promote increased levels of student physical activity in the context of social support. A recommendation is implementing training and providing resources to school personnel on social supports for physical activity. Examples include assigning staff members to take added initiative to positively encourage physical activity for students with chronic diseases (eg., obesity), educating students on the importance of peer support during physical activity, and reporting bullying or harassment in a timely manner (Morrison & Peterson, 2013).

The findings of this research describe a context where peer encouragement and peer bullying co-exist. These findings can be used by school personnel to inform the development of school policies that target the promotion of peer encouragement and discourage/penalize peer bullying, as related to physical activity. Previous research has found that peer-led health projects targeted at physical activity have been effective in increasing student awareness about healthy behaviors, while promoting student engagement and belonging, which may serve to increase peer encouragement and subsequent levels of physical activity while decreasing instances of bullying (McConnell et al., 2014). Incuding a wider range of activities, particularly those that are non-competitive in nature, is also important.

Human Subjects Approval Statement

The study was approved by the Institutional Review Board at East Tennessee State University (IRB# c0713.18s).

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Appendix 1: Moderators Guide

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Barriers to Bridges Focus Group Moderator Guide: School Personnel

Introduction

Thanks for taking the time to meet with me. I am [*name of facilitator*]. I understand that your time is valuable and we appreciate your participation. We'll be here about 60 minutes so that we can talk about ways school personnel and families can encourage healthy lifestyles for adolescents.

Before we get started, I'd like to go over some ground rules so that our discussion runs smoothly.

1. I would like to hear from everyone during the discussion even though each person does not have to answer every question.
2. Feel free to respond to what has been said by addressing your responses directly to me or to anyone else in the room. Please avoid side conversations so that people don't get distracted and everyone can be heard.
3. There are no wrong answers, just different opinions. So just say what is on your mind. You are the experts.
4. There are several questions that we want to go through, so I may have to move to another question before the discussion of a previous question has ended.
5. Everything we talk about is between us. You must agree not to reveal anything you learn about other participants or share statements made during this discussion outside of this focus group. Having said that, don't feel pressure to reveal thing about yourself that you are not comfortable with others in this group knowing.

Does each of you agree to these ground rules?

So I/we can keep focused on the discussion we will be audiotaping and [name] will be taking notes.

Any more questions before we begin?

Questions:

We'll begin by talking about physical activity among high schoolers.

1. What do you think are the main barriers to physical activity that high schoolers encounter?
   a. Cost
   b. Availability of parks in the community around the school
   c. School
   d. Time
   e. Stigma

2. How can we get around these barriers?

3. What role can families play in encouraging physical activity among high schoolers?
   a. Describe physical activity opportunities
   b. Describe ways families play together
   c. Others?

Now let's talk about physical activity at the high school

4. How does the high school encourage physical activity among high schoolers?
   a. Options that are available
   b. School policies (Describe these)
   c. State curriculums (Describe these)
   d. After school programs

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e. Family involvement
f. Coordinated School Health, School Nurses, Wellness Teachers
g. Local child health providers or pediatricians

Now, we're going to talk about healthy eating.

5. What does it mean to you to eat healthy?

6. How can we encourage healthy eating among high schoolers?
   a. At home?
   b. At school?
   c. Outside of home/school at fast food restaurants and convenience stores?
   d. With peers/friends?
   e. Stigma?
   f. Cost?

Now let's talk a little about healthy eating at the school.

7. How does the high school encourage healthy eating among high schoolers?
   a. Options that are available
   b. School lunch program
   c. School policies (Describe these)
   d. State curriculums (Describe these)
   e. Family involvement
   f. Coordinated School Health, School Nurses, Wellness Teachers
   g. Local child health providers or pediatricians

Now, let's talk about high school students' health in general.

8. What would you say are the main health problems among high schoolers?

Lets talk a little about the role of teachers/educators at the school and parents/families

9. What role should the school play in encouraging healthy behaviors among high schoolers?

10. What role should parents and families play in encouraging healthy behaviors among high schoolers?

11. How can we encourage greater involvement of the school in promoting healthy behaviors among high schoolers?

12. How can we encourage greater involvement of parents and families in promoting healthy behaviors among high schoolers?

Before we close, I want to discuss some ways we could involve parents in programs to encourage healthy eating and physical activity in their children.

13. What do you think is the best way to communicate with parents to promote healthy youth behaviors? (Prompts: texting, email, brochures, in-person meetings, school events, etc)

Those are all of my questions. Do you have anything else you'd like to share with me?

Otherwise, thanks for your insight.

Appendix 2

Table 1. Selected Quotes from Study Participants for Instrumental Theme

Theme	Parents	Teachers	Students
Transportation	"I've noticed the group of parents that.. have athletes… we're willing to give up our lives… to let them play"	"Automobiles are available here, look at the student parking lot"	-
Paying Fees	"What about fees… do you think that's a barrier?" "I don't think so… they're going to do it if they want to"	"I know people in the community that make sure kids can afford it. They would go out and buy things for them."	-
Enrollment in sports	"So many kids that play… It's up to around a third [of the students]"	"So many kids are playing travel sports, club sports"	"A multitude of options [sports]. And just whatever you want they will find a way that you can play it."
Access to physical activity equipment at home	"Mine ride bikes… I keep some weights in the house"	"She's doing… the Wii fit at home"	-

Table 2. Selected Quotes from Study Participants for Conditional Theme

Theme	Parents	Teachers	Students
Perform activity with	"My boys and husband… get out and… exercise" "Participate in these different [community walks/runs] and… end up bringing your kids along"	"Its what Mom and Dad do and they include you in it… [Jane Doe] taking her kids to the gym with her"	"My parents are always telling us… let's go walk around… so I'll go walk around with my mom or dad"
Modeling	-	"I started to get in shape and I show my kids… I really do use my personal experiences… when it comes to the classroom"	"I think the parents should… be telling their kids to make healthier choices and they need to be doing the things themselves.. they're the role models"
Watching/supervising	"I think every one of us talks to our children probably way more than a lot of the rest, the ones you never see here. We're involved.	"[The school] has a great playground… parents can walk around and watch the kids"	-
Prioritization	"If they've got… a leader… somebody in the school that… they see every day takes a a interest in them… that makes a difference"	"What roles can families play in encouraging physical activity?" "Limit tech time… take away video games"	"My family played a huge role in me playing basketball. They wanted me to play so bad… Didn't want to let 'em down… they told me what all it could lead to and told me it would teach me life lessons."

Table 3. Selected Quotes from Study Participants for Motivational Theme

Theme	Parents	Teachers	Students
Encourage	"Just getting outside and doing family things together… encouraging them to shoot basketball or pitch horseshoe"	"Promote activities…. We can mentor"	"I try my best to… encourage everybody… when we're playing… I'll clap for them.. I like to see everybody active and having fun"
Force	"I think it's the school's job to encourage [healthy behaviors], I think it's our job to enforce it."	"[Parents] make them go outside"	"[Parents] make [the child] play a sport"
Admiration of people who are active	"I know [the assistant principal is] very active… if they got out there and said… let's all go out there and walk around the track… [Students would] do anything they told them to do… Most most of the kids here do really like… them"	"I took my P.E. classes to the Y and went swimming… I've got kids like now coming back to me saying Coach [John Doe] thank you so much for taking us to the swimming pool because I go there every day now… My mom signed me a membership"	-

Table 4. Selected Quotes from Study Participants for Informational Theme

Theme	Parents	Teachers	Students
Discuss importance/benefits of physical activity	"What do you think is the families role?" "Definitely discussing it"	"Show them what they're risks are [of physical inactivity]… Some students with… juvenile diabetes… families need to know what the risks are"	-
Discuss how to be active	"Parents who are actually involved in their kid's life and actually are trying to teach them… they'd say why [is the school]… teach[ing] something that I that I feel like I need to be doing. And then those who… don't get it at home… think it it is the school's… responsibility… I think it needs to be encouraged both places"	"I try to steer away from the team competitive [games]… I teach skills.. to make everyone feel comfortable"	"[Parents should] teach them how to do [physical activity]"

Give advice/suggestions/information	"[Parents] should play a big role in teaching their kids the right thing [healthy behaviors]"	"With my son, who's trying to get in shape to go into the military, we use this… found him an app"	"Parents should… be telling their kids to make healthier choices… it needs to start when I'm very young"