African American fathers’ social support and relationship quality with daughters’ physical activity beliefs and behaviors.

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Dedication

This thesis is dedicated to my wife Maegan, and daughters Simone and Sophia, who have supported me along the way and gave me a reason to keep persevering. Additionally, I would like to dedicate this thesis to my late father who instilled in me the value of an education and demonstrated the work ethic necessary to make this possible.

Abstract

Across childhood and adolescence, physical activity (PA) levels decline more frequently for African American (AA) females. Parents are important socializing agents of childhood PA motivation through supportive and encouraging behaviors. Little information, however, exists on parental influence of AA girls, especially related to fathers' beliefs and behaviors. The purpose of this study is to investigate the relationship between AA fathers' social support and daughter PA self-efficacy, enjoyment, and PA behavior. Eleven father-daughter dyads participated based on in-person and online recruiting. Daughters responded to survey items related to father-daughter relationship quality, paternal support for PA, PA enjoyment, self-efficacy, and weekly PA levels. Due to the small sample size, descriptive statistics and bivariate correlations were calculated between variables of parental influence and daughters' PA beliefs and behavior. Mean age was 43.8±4.6 and 11±0.8 years for fathers and daughters. Fathers' mean BMI was 30.8±4.8 kg/m^2. Daughters' mean BMI-for-age percentile was 52.5±38.3 with almost half (46%) having healthy weight. Households were >80% dual parent, 73% included both biological parents, and 91% of fathers lived with daughters full-time. Mean paternal social support was 3.5 ± 0.5 out of 5, indicating moderate to high support. Mean father-daughter relationship quality was strong, 4.03± 0.6 out of 5. Daughters reported a mean of 7±3.9 hours/ week of total PA, mean PA enjoyment 4.5 ± 0.7 out of 5 and PA self-efficacy as 4.2 ± 0.6 out of 5, both indicating high levels. Most correlations among perceived paternal support and daughter psychosocial and PA outcomes were low to moderate: father-daughter relationship quality (r=.54), daughter total PA (r=.31), PA enjoyment (r=.39), and PA self-efficacy (r=.26). Father-daughter relationship quality was not correlated with any of the daughter PA outcomes. The findings of this study provide preliminary evidence of the relationship among AA paternal support and daughters' psychosocial and PA outcomes. The small sample size is a limitation and suggestions are provided for recruitment strategies with this population.

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Introduction

Physical activity (PA) has been identified as an important factor in living and maintaining a healthy lifestyle. Extensive research has shown that adequate PA can contribute to positive health outcomes, such as reduced risk of diabetes, hypertension, obesity, and high cholesterol (United States Department of Health and Human Services, 2018). Cognitive function may also be influenced by PA, leading to improved outcomes in the academic realm for children (Donnelly et al., 2016). Despite the numerous benefits of engaging in PA, many Americans are not meeting the established guidelines to warrant health benefits (United States Department of Health and Human Services, 2018).

There is also a growing concern for the steady PA decline in youth. Nationally representative surveys show that more youth are becoming less active and are at higher risk for negative cardiometabolic outcomes (Merlo et al., 2019). These low levels of PA are disproportionately impacting African American (AA) adolescent girls (Delva et al., 2006; Merlo et al., 2019; Troiano et al., 2008). Negative health outcomes have already been observed as AA youth have the highest prevalence of childhood obesity among girls (Hales et al., 2017). Declining trends in youth PA reinforce low levels of PA in adulthood. This contributes to the higher risk of chronic conditions such as obesity, which is steadily increasing for AA women and adolescent girls (Benjamin et al., 2018). The need for research on youth PA is a public health priority as establishing adequate PA behavior in childhood and adolescence can influence the trajectory of PA levels and health outcomes across the lifespan (Hallal et al., 2006).

Social science theorists have shed light on the vital role social influences can play on the development of beliefs and behaviors across different domains (Bandura, 1986; Bronfenbrenner, 1977; Harter, 1978). Parents have been identified as a salient source of social influence for PA behavior (Beets et al., 2010; Gustafson & Rhodes, 2006; Mendonça et al., 2014; Sallis et al., 2000). Studies have shown that parents' attitudes and behaviors toward PA are strongly associated with their children's attitudes and behavior (Babkes & Weiss, 1999; Bois et al., 2005; Brustad, 1993; Davison et al., 2003; Davison et al., 2006). These studies demonstrated that when parents are supportive and encourage PA participation, child self-perceptions such as ability beliefs and intrinsic value of PA are increased, and PA participation is greater.

However, in most studies investigating parental support of child PA, mothers are the primary parent-participant (Beets et al., 2010). Traditionally due to the increased willingness to be involved in research and challenges capturing information from both parents. Understanding the unique relationships between fathers and their children could add to our knowledge of the specific ways parents influence their child's PA behavior. The focus of the father or paternal influence on AA daughter PA behavior may provide additional information on ways to evoke positive health outcomes in this sample impacted by physical inactivity. Research has already observed that when AA adolescent girls report higher levels of involvement from fathers who are actively engaged in their PA, levels of PA are greater than those reporting lower levels of involvement from fathers (Blackshear, 2019). This study expressed that there still is a need to understand the specific ways that father involvement is linked to girls PA levels, highlighting the need to explore the unique relationship between father and daughters.

The Youth Physical Activity Promotion Model (YPAP; Welk, 1999) was structured based on robust findings from relevant theories and past research and provides researchers with a means of investigating the pathways through which youth PA can be influenced. The model seeks to explain PA behavior by investigating psychosocial variables such as enjoyment and self-efficacy and contributing social influences such as parental social support (Welk, 1999). This model was adopted to explore the questions of the current study through its identification of correlates of child PA behavior and the hypothesized pathways.

Gaps in the Literature

The literature exploring fathers' influence on their child's PA behavior is dominated by samples of primarily non-Hispanic White populations (Neshteruk et al., 2017). There also is a dearth of studies that focus on fathers when identifying correlates of parental support of youth PA (Rhodes et al., 2020). Researchers have also stated that when examining parental support, it may be necessary to separate the differential influences of mothers and fathers (Morgan & Young, 2017). Therefore, this study extends the literature by focusing on the PA support behaviors and outcomes of an understudied dyadic sample of AA fathers and daughters. This study will also add to the literature by investigating parent-child relationship quality as a potential correlate of parental social support, child PA enjoyment, self-efficacy, and PA behavior. Fathers play an equally important role in the development of a child's beliefs and behaviors. Understanding the unique social supportive behaviors exhibited by fathers, especially in the AA community, researchers may be able to frame interventions that attract more participation from this understudied population at risk for low PA.

Research Questions and Hypotheses

The purpose of the current study is to investigate characteristics of the father-daughter relationship and observe if this relates to the daughter's PA behavior. The researchers will assess the relationship quality between father and daughter and identify its association with perceived paternal social support for PA and child PA psychosocial and behavioral outcomes. Therefore, the aims and hypotheses of the current study are:

Aim 1: Is there a significant relationship between perceptions of father-daughter relationship quality and perceptions of paternal social support for physical activity? It is hypothesized that perceptions of the father-daughter relationship quality will be positively and significantly correlated with perceptions of paternal social support for PA.

Aim 2: Are perceived father-daughter relationship quality and paternal support significantly related to daughter PA behavior, self-efficacy for PA, and PA enjoyment? It is hypothesized that both father-daughter relationship quality and paternal social support will be positively related to all three child physical activity variables.

Review of the Literature

In this literature review, I address patterns of youth physical activity (PA) behavior and highlights disparities based on sex, race, and age. Then, theoretical frameworks are used to understand youth PA behavior and outlines the heuristic model that will underpin this study. The next section discusses psychosocial constructs germane to youth PA and rationalizes the significance of studying the selected population of African American (AA) fathers and their daughters. The literature review concludes with how this study extends the literature and presents the research questions and hypotheses (Figure 1).

Youth Physical Activity Trends and Disparities

Addressing child and adolescent PA is a vital public health issue as PA patterns established early in life can influence the health outcomes experienced in adulthood (Hallal et al., 2006). PA is an essential component to a healthy lifestyle. Regular participation confers both mental and physical health benefits, alongside increasing one's chance for a higher quality of life (United States Department of Health and Human Services, 2018). In a nationwide effort to emphasize the importance of PA, the U.S. government has established the federal PA Guidelines for Americans. These guidelines state that children and adolescents should engage in at least 60 minutes per day of moderate-to-vigorous PA (MVPA), composed of aerobic, muscle- and bone-strengthening exercises (United States Department of Health and Human Services, 2018). The suggested guidelines represent the minimum amount of PA volume to warrant both cardiovascular and musculoskeletal benefits, which are crucial to health, growth, and maturation.

Even with these established minimum recommendations, the U.S. is still rated as one of the countries with the lowest levels of children and adolescent PA (Tremblay et al., 2016). National surveillance of adolescent PA behavior in the U.S. has supported this ranking. Data from the Youth Risk Behavior Surveillance System (YRBSS) shows that over the last 10 years the proportion of U.S. high school students meeting the national MVPA guidelines has decreased linearly from 29-23%, concurrent with a 6% decrease in performance of bone- and muscle-strengthening exercises (Merlo et al., 2019).

Based on these data, significant sex and race disparities can be identified. In the most recent year of observation the prevalence for the female high school students meeting both the guidelines for aerobic and muscle-strengthening PA was less than half the prevalence observed in the male students, 10.1 and 23.1% respectively (Merlo et al., 2019). Similar gender-specific results were observed in the National Health and Nutrition Examination Survey, where researchers Fakhouri et al. (2014) found in their sample of 12-15 years old adolescents, girls were less physically active across seven days (22.5%) when compared to the boys (27%). When comparing U.S. high school students by race, the researchers found that over the last five years non-Hispanic Black or AA individuals had the lowest prevalence of meeting the guidelines for both aerobic and muscle-strengthening exercises. The most recent prevalence observed was 13.4% compared to 16% in the Hispanic students, and 18.4% in the non-Hispanic White students (Merlo et al., 2019). The above findings show that low levels of PA are disproportionately observed within adolescent girl populations and for the AA community. However, further research has also identified age disparities in declining PA levels and with significant trends seen in AA adolescent girls (Delva et al., 2006).

Researchers have identified age as another significant correlate of declining PA behavior in adolescents. This is often compounded for those populations that are disproportionately represented by low levels of adolescent PA, such as AA girls (Delva et al., 2006; Troiano et al., 2008). Delva et al. (2006) witnessed this in their long-term investigation comparing changes in health-related behaviors between 8th, 10th, and 12th grade students. Not only did the percent of youth who exercised vigorously decline as the grade level increased but AA girls reported the lowest levels of regular vigorous exercise at each time point and grade level (Delva et al., 2006).

Studies using objective measures of PA have also reported this inverse association between age and levels of PA. Troiano et al. (2008) assessed PA levels using accelerometers across different age groups representing childhood through adulthood. They found that, overall, boys accumulated more physically active than girls, accelerometer counts per minute declined significantly as age increased and that the most prominent decline was observed in girls between the age groups of 6-11 to 12-15 years. Between those two groups the prevalence of meeting the public health recommended amount of PA decreased from 34.7% to 3.4% (Troiano et al., 2008). These results support similar findings in a past study in which Trost et al. (2002), in their objective measurement of PA observed a 27% decrease in MVPA between the girls in a 10th-12th grade group compared to the 7th-9th grade group. Overall, they also reported that PA levels declined as grade level increased. Both findings support that PA in girls decreases drastically during early adolescence. However, Troiano et al. (2008) explored these findings further by also comparing racial differences in their objective measurement of PA. They found that AA girls in the 6-11 age group had the highest amount of PA compared to different race/ethnicity peers but reported the lowest averages of PA in subsequent adolescent age groups (12-15 and 16-19 years) (Troiano et al., 2008). These findings warrant investigation into what factors contribute to such a reversal of PA for AA girls moving from childhood through adolescence.

The above studies show that AA girls are disproportionately representative of inadequate levels of PA. This disparity may put AA girls at an increased risk for negative health outcomes as accrued MVPA has been tied to cardiometabolic risk in children and adolescents (Ekelund et al., 2012). Understanding the factors that influence their development of PA behavior is essential to addressing this public health issue. However, the development of PA beliefs and behavior in children and adolescents requires considering multiple factors of influence. Alongside the biological factors addressed above cognitive, emotional, and social influences have been shown to be significant correlates of PA behavior. These factors include individual beliefs such as PA enjoyment, self-efficacy for PA, and social support from significant others such as parents (Sallis et al., 2000). Due to the complex nature of PA behavior development and the diverse areas of factors that may influence these behaviors, researchers have employed theories that take into consideration multiple levels of influence.

Theoretical Background

Researchers have used overarching frameworks such as the Social Ecological Model (SEM), Social Cognitive Theory (SCT), Competence Motivation Theory (CMT), and Expectancy-Value Theory (EVT) to underpin interventions and studies on child PA behavior and development. A SEM approach considers each level of influence starting at the intrapersonal, and moving outward to interpersonal, community, environmental, and organizational influences (Bronfenbrenner, 1977; Fleury & Lee, 2006). Researchers who employ the SCT to underpin their studies believe that supportive environments are necessary for developing and sustaining health behaviors (Bandura, 1986). Thus, social cognitive theorists believe the individual, their environment, and their behavior exist in a triadic dynamic relationship of influence. Within this triadic relationship cognitive processes, such as the individual's self-efficacy of the behavior, interpret the environmental stimuli and influence the individual behavior outcomes (Dzewaltowski, 1994).

CMT is a developmental theory that proposes individuals are driven to feel competent and have control over a given domain-specific task (Harter, 1978). When mastery attempts of a given task or behavior are successful and met with appropriate feedback and reinforcement from significant others, perceived competence, and positive affect results, which in turn reinforces the individual's motivation to perform or continue the behavior (Harter, 1978).

Eccles et al. (1983) EVT emphasizes that individuals' behavior and choices related to achievement domains such as PA, are related to their expectancies of success and the value they assign to these achievement tasks. This theory allows researchers to investigate psychological and emotional drivers of PA behavior and participation. EVT highlights the importance of the influence of the social environment on the development of the individual's expectations of success or subjective task values (Eccles et al., 1983).

This emphasis on the sociocultural environment affecting achievement outcomes led to Eccles et al. (1998) expanding on EVT to specifically address how parents socialize children into achievement domains. Through this they developed the model of parental influence. This Model of Parental Influence successfully allows researchers to investigate how parents' beliefs and behaviors affect their children self-perceptions and ultimately achievement behavior (Eccles et al., 1998). The researchers later determined that this parental influence can be investigated through observing three mechanisms: parents being providers of experience, interpreters of experience, and through role modeling (Fredricks & Eccles, 2004). Understanding these mechanisms of influence can assist in understanding how the relationship between fathers and daughters can facilitate PA behavior development.

These theories and supportive research demonstrate that behavior, including PA, t can be explained by socioenvironmental variables, such as parental beliefs and behaviors, and intrapersonal variables, such as ability perceptions, task values, and emotions (Fredricks & Eccles, 2004; Horn & Horn, 2007). EVT, more specifically the model of Parental Influence, incorporates both social environmental and intrapersonal variables in explaining motivated behavior and highlights the mechanisms through which parents' attitudes, social norms and socializing behavior influences their child's own attitudes and behavior (Eccles et al., 1998). The YPAP model was derived based on these social psychological theories and certain variables are used in the present study to investigate the relationship between AA fathers and their daughters' PA beliefs and behaviors.

Youth Physical Activity Promotion Model

Welk (1999) developed the YPAP model to understand parental socialization of children's PA behavior. YPAP integrates concepts from multiple theoretical frameworks such as in SEM, SCT, CMT, and EVT. The YPAP model includes the "reinforcing factors" from the social environment that can directly and indirectly influence child PA behavior. These can come from peers, family and other significant adult sources of support. YPAP also includes “enabling factors” which make it easier for the youth to be active. These enabling factors stem from characteristics of the environment and the biological traits of the youth. Environmental aspects include access to equipment, facilities, safety of the environment, presence of sidewalks, greenspaces, and weather. Biological factors consist of the individual's physical fitness, skill level and body composition, which it has been shown that youth who are more physically fit may seek out more opportunities to engage in physical activity (Welk, 1999). These enabling factors both directly and indirectly influence youth PA in this model. The environmental factors are shown to directly influence youth PA and the biological factors are more commonly an indirect influence through the “predisposing factors” of the model.

Predisposing factors describe the individual’s beliefs about their PA behavior. The construct is broken into two questions/categories: “*Am I able*?” and “*Is it worth it*?”. The question “*Am I able*?” represents the individual's assessment of their ability. Measurements of self-efficacy and perceived competence can be observed here. The second question “*Is it worth it?*” represents both cognitive and affective valuation of the activity (Welk, 1999). Costs, benefits, enjoyment, and interest in PA are assessed within this construct of self-efficacy. Both self-efficacy and enjoyment have shown utility in studies investigating adolescent PA behavior through the YPAP model (Silva et al., 2014; Silva et al., 2012; Wenthe et al., 2009). Welk (1999) conceptualized that reinforcing factors directly influenced both the categories within predisposing factors and PA outcomes. Demographic factors are depicted in YPAP to influence each construct within the model.

Parental Social Support of Child PA

Research has shown that as youth move through childhood into adolescence PA behavior decreases significantly (Delva et al., 2006; Sallis et al., 2000; Troiano et al., 2008; Trost et al., 2002). This trend is especially salient in AA adolescent girls as seen in nationally conducted surveys of adolescent students’ PA behavior (Merlo et al., 2019). This period also coincides with a key developmental stage where the influence of peer support increases as parent support decreases (Davison & Jago, 2009).

During adolescence peer support becomes an increasingly salient influence of PA behavior. However, Davison and Jago (2009) found in their study that parental support remained an important determinant of the maintenance of PA behavior in adolescent females. Trost and Loprinzi (2011) highlighted this importance by finding a 10% greater number of positive associations between parental social support and child PA in studies of adolescents aged 13-18 compared to children aged 6-12 years. This is contrary to most literature, which emphasizes the salience of parental support through childhood compared to adolescence.

From a developmental perspective, Worthman et al. (2016) concluded that early to mid-adolescence may be a key period when parents can most influence child outcomes, due to the psychological and behavioral maturation that starts to take place as children move into puberty. However, literature has shown that the ways in which a parent can influence their child’s PA behavior are multidimensional and there are different outcomes based on the source and form of support (Beets et al., 2010; Gustafson & Rhodes, 2006; Mendonça et al., 2014).

To unify the body of literature on parental social support, Beets et al. (2010) conducted an extensive review framed by their multidimensional definition of social support. They describe parental social support as the various ways parents purposefully influence the activity behaviors of their children by intentionally participating in, prompting, discussing, and/or providing activity-related opportunities. Results from their review indicate social support can be split into two broad categories: tangible and intangible support.

Tangible support represents the direct facilitation of the child's involvement in PA or other sports-related activities. This can be accomplished by logistical or transportation related behaviors, provision of means to participate (i.e., paying fees, buying equipment, enrolling a child), and direct involvement in activity by either performing the activity with the child or watching/ supervising the child's activity. Intangible support represents the verbal encouragement and praise of a child's participation in the activity and/ or informational behaviors that provide instruction or emphasize the importance of physical activity/ sports participation (Beets et al., 2010).

In contrast to investigating the separate constructs of social support, studies often elect to use a composite measure. This allows the researchers to understand an overall or summative perspective rather than distinguishing the specific support behaviors that are significant. Composite measures contain item responses covering both tangible and intangible types of support. This may limit the ability to provide information on the specific types of supportive behavior that facilitate PA. However, the use of these summative measures facilitates the ability of researchers to provide general recommendations, which is useful for the present study project that is exploratory in nature. Overall, Beets et al. (2010) state these definitions can be used to frame interventions and investigate the ways in which parents can facilitate physical activity in their children.

A theme highlighted in the literature is that boys tend to receive more support from parents for participation in sports and physical activities (Beets et al., 2010; Gustafson & Rhodes, 2006; Trost et al., 2003; Welk et al., 2003). Due to many studies showing a positive relationship between parental support and child PA, this unequal provision of support may be a determinant in the gender disparities observed in child PA levels (Gustafson & Rhodes, 2006). Parents have been observed to facilitate PA more for boys through tangible means such as provision of equipment, and increased access and opportunities to be active (Welk et al., 2003). But it has also been observed that AA adolescent girls desire more of these forms of tangible support from parents (Wright et al., 2008). This demonstrates that the forms of support predominantly shown to boys may equally benefit girls, especially those at-risk of low levels of PA.

Some studies have also shown that significant associations between parental support and child PA levels may be attributed to child and parent having the same gender (Gustafson & Rhodes, 2006). Bauer et al. (2008) highlighted that parental encouragement to the child may be especially influential if the sex of the parent matches the child. However contradictory research is prevalent. Beets et al. (2006) found that neither boys nor girls perceived greater support for PA from their father or mother and Neshteruk et al. (2017) observed no differences in influence of child PA between mother or father.

In most studies investigating parental influence of child behavior, mothers are the primary respondents and fathers are underrepresented (Morgan & Young, 2017). Which limits understanding potential differences in social support behaviors employed by fathers and mothers (Davison et al., 2003; Morgan & Young, 2017; Zahra et al., 2015). Davison et al. (2003) found that mothers provide more logistical support and fathers provided more role modeling; however, each were found to be significantly related to the adolescent girls PA levels. Zahra et al. (2015) mimicked this finding as mothers indicated that they played a more transportive/ logistical role (e.g., transporting to and from activities), and fathers actively facilitated, role modeled, and co-participated in activities with children. Edwardson and Gorely (2010) found that this type of active role modeling by fathers was the only consistent influence on adolescent PA across the cross-sectional and longitudinal studies they reviewed. They went further to state that fathers’ role modeling should be targeted particularly to influence the PA levels of any low active youth in their care. This highlights the importance to study fathers' supportive behaviors of child PA for not only sons but daughters as well.

Parent-Child Relationship Quality

Researchers have stated that parental support of PA may have key correlates that affect this behavior’s relationship with child PA outcomes (Rhodes et al., 2020). However, in the review conducted by Rhodes et al. (2020) a paucity of studies observing inter-individual correlates was found. The researchers state that, in line with Family Systems Theory, understanding the quality of the relationship between parent and child and their role structures within the family social system may hold important implications for PA support (Rhodes et al., 2020). Trost and Loprinzi (2011) also expressed that family cohesion may impact the child PA behavior. This provides rationale that characteristics of the relationships within the family can contribute to PA behavioral outcomes.

Trost and Loprinzi (2011) hypothesized that families who are more cohesive may create positive environments that allow for more opportunities for PA engagement and support for PA. However, in their review of parental influence and child/adolescent PA behavior, only four out of the eleven studies showed positive and significant association with child PA. They indicated that due to the small number of studies found that included this cohesion variable more research is needed (Trost & Loprinzi, 2011). Trost and Loprinzi (2011) hypothesis was demonstrated in a later study that looked directly at characteristics of the parent-child dyad that support PA. de la Haye et al. (2014) found that parent-child relationships described as close were important. These relationships were observed to be more encouraging, and that encouragement was reciprocal in nature leading to positive associations with co-participation in and support for PA. Although gender of the parent-child dyad was not associated with encouragement, these researchers did observe that father-daughter dyads were less likely to co-participate in activities. They attributed this finding to unexplored potential cultural norms that define the paternal-daughter interaction within their Mexican American sample (de la Haye et al., 2014). However, the findings warrant further investigation in other diverse populations, of the characteristics of parent-child dyads that predict PA outcomes.

In the youth sport and motivation domain, Ullrich-French and Smith (2006) found that higher positive father-child relationship quality was significantly associated with lower sport stress and greater self-determined motivation. However, this sample was predominantly composed of a White population (93%) and investigating a more diverse sample may provide added knowledge to the body of literature on relationship quality and child sport/PA outcomes. Parent-child relationship quality may serve as a key correlate of parental support of child PA. When the relationship between the parent and child is characterized as close, cohesive, encouraging, and supportive, child PA motivational and behavioral outcomes are positively affected (de la Haye et al., 2014; Trost & Loprinzi, 2011; Ullrich-French & Smith, 2006). This provides rationale to explore the influence of parent-child relationship quality in a model investigating the relationships between parental support for PA and child beliefs and behaviors, as found with the correlates identified in the YPAP model.

Self-Efficacy of PA

Grounded in SCT, self-efficacy can be defined as the individual's confidence in their use of their skills and abilities to perform a behavior to bring about a desired outcome (Bandura, 1986). Therefore, self-efficacy beliefs serve as a key cognitive process interacting with the individuals' goals and outcome expectations (Dzewaltowski, 1994). This relationship can apply within the physical activity domain as early research has identified self-efficacy as a correlate of child and adolescent PA (Sallis et al., 2000).

Self-efficacy beliefs may be especially influential for adolescent girls PA behavior. In a longitudinal study of determinants of child PA, DiLorenzo et al. (1998) concluded after their longitudinal analysis, over the course of the study, self-efficacy was the only positive predictor of girls PA. This early study demonstrated that self-efficacy beliefs became significant as adolescents aged, reinforcing the findings from Young et al. (2014) that higher self-efficacy beliefs were associated with higher levels of MVPA for adolescent girls at the 11th grade level compared to the 6th and 8th grade girls. The researchers concluded that self-efficacy may be more important in later adolescence as individuals have more power to choose their PA participation and are faced with more barriers from increasing peer influence (Young et al., 2014). However, in contrast, the ability to overcome these barriers to PA through increased self-efficacy may need to be developed in early adolescence. In their study of 6th and 8th grade girls, researchers Dishman, Dunn, et al. (2009) found that self-efficacy beliefs about overcoming barriers to PA are formed by 6th grade and that self-efficacy beliefs had a direct and indirect effect on PA through perceived barriers.

Utilizing the YPAP model both Silva et al. (2012) and Wenthe et al. (2009) found that self-efficacy was positively and significantly associated with MVPA but also was related to the reinforcing factor of social support and directly associated with the other predisposing factor of enjoyment. This shows that self-efficacy beliefs are a vital pathway to understanding other psychosocial outcomes of the model. This could be through the mediational roles self-efficacy may play, suggested by Motl et al. (2002) in their study of the social-cognitive correlates of PA behavior in Black and White adolescent girls. Trost et al. (2003) also observed this mediational role of self-efficacy, as the relationship between parental support and child PA was partially mediated by self-efficacy perceptions due to the positive associations between parental support and self-efficacy. However, the relationship between self-efficacy and the constructs of the YPAP are not always significantly associated (Beets et al., 2007).

Beets et al. (2007) found that the relationship between self-efficacy and parental support may be more complex. In their study of adolescent girls, self-efficacy comprised three categories: self-efficacy for seeking support, self-efficacy for overcoming barriers, and self-efficacy for completing the activity. Although they did not observe any mediating effects from self-efficacy on the relationship between parental support and adolescent PA, they did observe that social support from fathers was directly associated with self-efficacy for seeking support. This unique finding demonstrates that the relationship between adolescent girls and their fathers, when supportive may enhance their ability to seek help to be physically active. The reinforcing factors of the YPAP model have been found to be directly associated with each other (Silva et al., 2012). Self-efficacy can mediate the effect of enjoyment on PA, but enjoyment has also been shown to predict self-efficacy beliefs and impact PA levels (Dishman, Motl, Saunders, et al., 2005).

Enjoyment of PA

Motivational theorists believe that positive affect, such as enjoyment, plays a key role in influencing an individual's motivation to participate or continue in physical and sport activities. (Harter, 1978). This has led to researchers investigating enjoyment as a determinant of PA behavior in children and adolescents (DiLorenzo et al., 1998). In their longitudinal analysis, the researchers found that enjoyment was the only consistent predictor of both the 5th and 6th grade boys and girls exercise behavior. However, in their older sample of 8th and 9th graders enjoyment was no longer a significant predictor in lieu of other more significant variables. This discrepancy of enjoyment being a determinant of exercise has been seen in other literature. In a review of the correlates of child and adolescent physical activity, Sallis et al. (2000) observed that studies specifically investigating enjoyment as a determinant variable were either not associated with PA or it was unable to be determined.

Enjoyment of PA may have a complex relationship with PA outcomes, as researchers have seen that enjoyment can be inversely related to MVPA in older adolescent girls (Young et al., 2014). However, the effect of enjoyment on PA for adolescent girls cannot be overlooked, as pathways through other psychosocial constructs such as self-efficacy have shown that increased enjoyment can directly lead to increased PA levels (Dishman, Motl, Saunders, et al., 2005). This positive relationship has been observed when investigating dyadic relationships between parent and adolescent PA beliefs and outcomes (Burns, 2019) and when investigated in the presence of other psychosocial variables (Jekauc et al., 2019; Silva et al., 2012). This positive direct effect on enjoyment from parental social support highlights the role parents may serve as an important influence of child enjoyment of PA.

Developmental sports psychologists have stated in summary that parents as providers of sport and PA experiences can influence child self-perceptions, such as perceived competence, and enjoyment, through greater perceived encouragement, and support (Weiss et al., 2007). When parents are perceived to be positive role models, hold positive beliefs about their child's sport competence, and give positive contingent feedback to mastery attempts, child’s self-perceptions are increased and both enjoyment of sport participations and intrinsic motivation are greater (Babkes & Weiss, 1999). The findings from this study also point to the idea that the type of relationship quality between fathers and their children can be significant, as the children that perceived less pressure to perform well and had parents who were more involved in their sport participation had greater levels of enjoyment. Parental influence may not only directly influence enjoyment and self-perceptions but could also serve to attenuate negative effects on enjoyment in the presence of low self-perceptions. Shen et al. (2018) found that greater beliefs of assistive parental social support directly enhanced PA enjoyment in girls who perceived low PA competence and follow-up analyses indicated a protective effect on enjoyment from the low competence perceptions. The findings above show that enjoyment of PA is a key construct in understanding child and adolescent PA behavior and that parental supportive behaviors may strongly influence enjoyment of PA.

Conclusion

Parental influence of child PA behaviors has been extensively studied, however, there remains a paucity of studies that ensure fathers are equally represented or the primary parent of study (Morgan & Young, 2017; Rhodes et al., 2020). The YPAP model identifies key variables in the literature that have been shown to correlate with child PA levels and there have also been outcomes that were specific to fathers' influence of daughters' PA behavior (Babkes & Weiss, 1999; Beets et al., 2007; Edwardson & Gorely, 2010). There is a need to target daughters as the primary child of interest due to the common finding that they receive less support for PA from parents and that interactions from parents are not only significant in same-sex dyads (Beets et al., 2010). Adolescent girls are also at an increased risk for physical inactivity especially from AA communities (Merlo et al., 2019). Fathers of AA daughters may serve as a strong influence in PA behavior (Blackshear, 2019). The positive effects of AA father involvement have already been documented in the academic achievement realm (Jeynes, 2015). The improvement of adolescent girls PA has been documented by the engagement of fathers (Blackshear, 2019; Morgan et al., 2019). Reviews of the parental influence of child PA beliefs and behaviors have emphasized the need to explore these relationships in a diverse population, due to the literature predominantly based on White, middle-upper class samples (Horn & Horn, 2007; Neshteruk et al., 2017). Parent participation in these studies investigating PA supportive behavior is lacking father representation and are saturated with mothers being the parent respondents (Beets et al., 2010; Rhodes et al., 2020). This presents considerable gaps in the literature that this study seeks to fill.

Therefore, the current study seeks to add to the body of knowledge in this area by focusing on AA fathers; investigating child-parent relationship quality as a possible correlate of perceived parental social support for child PA; and investigating the father-daughter relationship as a determinant of youth PA behavior through the relationships identified in the YPAP model. In studies using the YPAP model, parental social support for PA has been observed to influence self-efficacy, enjoyment, and PA behavior in youth (Silva et al., 2014; Welk et al., 2003; Wenthe et al., 2009). In this study, I sought to investigate if the inclusion of parent-child relationship quality as a potential correlate of paternal social support, influences the known relationships of the variables. This will allow for understanding into if these parental variables are associated with the daughters' PA beliefs and behaviors. Therefore, based on theories and research on parent-child beliefs and behaviors in physical activity contexts (Horn & Horn, 2007; Silva et al., 2014; Weiss et al., 2012; Weiss & Kipp, 2018; Welk, 1999; Welk et al., 2003), the aims of this study are twofold:

Aim 1: Is there a significant relationship between perceptions of father-daughter relationship quality and perceptions of paternal social support for physical activity? It is hypothesized that perceptions of the father-daughter relationship quality will be positively and significantly correlated with perceptions of paternal social support for PA.

Aim 2: Are perceived father-daughter relationship quality and paternal support significantly related to daughter's physical activity, self-efficacy, and enjoyment? Figure 1 depicts this relationship. It is hypothesized that both father-daughter relationship quality and paternal social support will be positively related to all three child physical activity variables.

Conceptual Framework

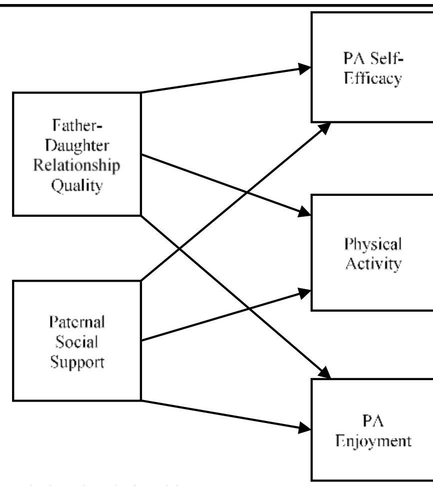

Figure 1: Conceptual Model of Correlational Relationship between Parent Variables and Child PA Outcomes

Method

Participants

Eleven parent-child dyads composed of fathers and daughters were recruited for this study. Inclusion criteria were the following: 1) participants identified as AA or Black, 2) parent participants identified as the biological father or primary male caregiver to youth participant, 3) youth participants had to be between the ages of 10-12 years old and identified as the daughter to parent participant, 4) participants lived together at-least part-time. The age range of 10-12 years old has been selected purposely to represent late childhood to early adolescence. This is a developmental period where parents are important sources of social influence (Horn & Horn, 2007; Horn & Newton, 2019). Living together part-time was defined as living in the same household for at-least 2 days out of the week.

Measures

Perceived Father-Child Relationship Quality (Appendix A)

Relationship quality between fathers and daughters was assessed using a modified version of the Sport Friendship Quality Scale (Weiss & Smith, 1999). The modified SFQS consisted of seventeen items, fourteen assessing five positive dimensions of the relationship (self-esteem enhancement and supportiveness, loyalty and intimacy, things in common, companionship and pleasant play, and conflict resolution) and three items related to relationship conflict (Ullrich-French & Smith, 2006). This measure was adapted by Ullrich-French and Smith (2006) to be used as a soccer sport-specific parent child relationship quality scale. For the current study it was modified relative to overall sport/ physical activity participation. Example items included; “After I make mistakes my father encourages me" (self-esteem enhancement and supportiveness), "My father and I have the same values" (things in common), and "When we have an argument, my father and I talk about how to reach a solution" (conflict resolution). Responses were on a 5-point Likert scale ranging from *not at all true* to *really true*, with higher scores indicating greater father-daughter relationship quality. The fourteen items related to the positive dimensions were averaged to produce the relationship quality score (Ullrich-French & Smith, 2006). The father-child indexes were observed to be valid in this age group and possess good internal consistency reliability (Cronbach's alpha .92 for both positive and conflict dimensions) (Ullrich-French & Smith, 2006).

Perceived Paternal Social Support of Youth PA

Paternal social support of youth PA was assessed using a 5-item composite scale (Prochaska et al., 2002; Sallis et al., 2002). The scale measured parental support behaviors of encouragement, praise, transportation to and from physical activity settings, PA participation with youth, and direct observation of youth PA . An example question is: "How often has your father encouraged you to do physical activities or play sports...". Participant responses were on a 5-point scale ranging from *never* to *every day*. This scale has been shown to have good test-retest (.88) and internal consistency reliability (Cronbach's alpha = .77)(Prochaska et al., 2002).

Physical Activity Self-Efficacy

An 8-item scale developed for adolescent girls was used to measure self-efficacy for physical activity (Dishman, Motl, Sallis, et al., 2005). An example of a question is: "I can be physically active during my free time on most days". Participant responses were on a 5-point scale ranging from *disagree a lot* to *agree a lot*. Confirmatory factor analysis supported factorial validity, as well as test-retest (.78) and internal consistency reliability (Cronbach's alpha of .79), when assessing 6^{th} and 8^{th} grade girls (Dishman, Motl, Sallis, et al., 2005).

Enjoyment of Physical Activity

Enjoyment of PA was assessed using a 6-item scale adapted from the 16-item modified Physical Activity in Enjoyment Scale (Motl et al., 2001). An example item: "When I am active I feel bored". Participant responses will be on a 5-point scale ranging from *disagree a lot* to *agree a lot*. Responses were reverse scored, with higher scores indicating greater enjoyment. The scale was shown to have factorial validity and internal consistency reliability (Cronbach's alphas of .862)in a sample of 6^{th} grade (mean age = 12 ±0.5) middle school girls (Dishman, Hales, et al., 2009).

Physical Activity

PA was assessed using a modified Godin Leisure-Time Exercise Questionnaire (GLTEQ) (Godin & Shephard, 1985). The measure consisted of three items assessing how many hours were spent in hard/strenuous, moderate, and mild intensity exercise during the past week. Total PA was calculated found by summing scores for the hard, moderate, and mild levels of PA. MVPA was found by analyzing the combined amounts of hard and moderate PA. Response categories consisted of 1) none, 2) 1 hour, 3) 2 hours, 4) 3 hours, 5) 4 hours, 6) 5 hours, and 7) 6 or more hours. Examples of hard/ strenuous intensity exercise included biking fast, running, jogging, swimming laps, soccer, and basketball. Examples of moderate intensity exercise included walking quickly, dancing, baseball, gymnastics, and easy bicycling. Examples of mild intensity exercise included walking slowly, bowling, stretching, and household chores. Correlations with other self-report measures of PA have provided evidence of construct validity for the GLTEQ in fifth grade youth (mean age = 11.2 ±0.67) (Sallis et al., 1993). In youth, this modified scale has been shown to have acceptable test-retest reliability, with values of: .63 (hard/ strenuous intensity item); .52 (moderate intensity item); .51 (mild intensity item); and .69 (total PA time/week calculation) (McGuire et al., 2002).

***Demographic Questions* (Appendix B)**

Demographics of the fathers included age, height, weight, marital status, highest level of education, household income, household arrangement (whether father lived with biological mother, single or dual parent household, and number of children), and child living arrangement, if parents did not live together (how many days/ week or/ month daughter lived with father). Daughters' demographics included age, height, weight, number of siblings(number of older or younger brothers/sisters), grade level, and organized sport/ team activity participation (Y/N). BMI (kg/m^2) was calculated for fathers and BMI percentile was found using the CDC BMI Percentile Calculator for Child and Teen. Values were calculated based on the CDC growth charts for children and teens ages 2 through 19 years (Centers for Disease Control and Prevention, 2020).

Procedure/ Data Collection

Participants were recruited through online flyers (see Appendix C), word of mouth, social media, and in-person face to face interaction. Researchers targeted faith-based organizations, local community centers/ health and wellness organizations, online father-support groups and other social media pages that serve predominantly AA or Black communities (i.e., *Real Strong Black Fathers & Supports, Black Fathers, Black Fathers Exist: Supporting Black Fatherhood, True Positive Black Images They Never Show You,* *Positive Black Images*). Additionally, recruitment materials were distributed by the research team via personal invitations. Recruitment targeted AA fathers and their daughters. Online recruitment materials contained an anonymous link/QR code to the study screening and eligibility questionnaire (see Appendix D). After passing screening and eligibility fathers identified a daughter co-participant that also met the eligibility criteria. Participants were then directed to provide an email address where they were contacted by the research team. Once eligibility was verified, participants were emailed a personalized link to the study consent/ assent forms (see Appendices E & F), and survey questionnaires. An informational flyer was used for in-person recruitment. This flyer provided background information on the study and purposes, while supplying contact information for the research team.

Online participants used their email to access the survey through the personalized link sent to their email. When participants accessed the link, they watched a video providing information about the study and then were directed to the consent forms. After signed consent from the fathers and signed assent from the daughters was received electronically, participants were directed to the complete survey. Participants were instructed to complete their portion of the survey without the assistance or presence of their co-participant. The demographic portion of the survey was completed by father participants. This allowed the research team to accurately obtain general descriptive information about both participants. Daughters reported psychosocial and PA behavior measures covering perceived father-daughter relationship quality, perceived paternal social support, leisure-time PA, PA self-efficacy, and PA enjoyment. If participants were unable to complete the survey at one time, they could re-access the survey by using the email they provided. This allowed daughters to complete their portion of the survey during a time when they were not with their father. Participants who sought to complete the study measures in-person, were provided information about the study and had the consent/assent process explained to them. Fathers needed to provide written consent for themselves and for their daughter to participate. Daughters provided written assent. Once consent and assent were given, fathers completed a paper survey of the demographic information, and daughters would be directed to another area to complete a paper copy of the psychosocial, and PA behavior measures of the survey. If at the point of recruitment, only the father or the daughter was present, the potential participant was provided the study materials to bring home and complete. They would then be asked to mail back completed consent/ assent forms, demographics section, and the daughters' completed psychosocial and PA measures using a provided stamped, addressed, envelope to send in the completed survey materials. For the present study all participants recruited completed their measures through the online platform.

The data collection period was open for seven months (Aug 2021 - Mar 2022). The program Qualtrics was used for online survey development and data collection. A paper survey based on the electronic version was used to provide a paper option for data collection in-person. As a retention and completion incentive, participant dyads were given one $25 prepaid debit gift card. The gift cards were either given in-person after verification of all completed survey measures or mailed to an accurate address provided by the participants. Online participants provided an accurate mailing address in the email delivering their personalized study link. A second incentive was presented to participants at a one-time recruitment event. Participants who signed up for the study at the event were entered into a random drawing for one of three Target gift cards. A $50 Target gift card was randomly given to participants who signed up and finished the study materials at the event. One $25 Target gift card was given to two participant dyads who finished their survey materials within a week from the recruitment event.

A pilot study was conducted with two participant dyads prior to the official start of data collection to assess comprehension of the survey measures and duration of survey completion. No changes were made to the survey measures after the pilot and the duration of survey completion was stated to be between 15 – 20 minutes. The University of Minnesota's Institutional Review Board approved the study (IRB# STUDY 00013529, date of approval 07/25/2021) (see Appendix G).

Design and Data Analysis

This study utilized a cross-sectional design with correlational and qualitative methods to address study aims. Due to the small sample size, bivariate correlations were conducted to assess the relationships between the parental influence variables with the child PA beliefs and behavioral outcomes. Father-daughter relationship quality and paternal social support represented the parental influence factors and daughter's enjoyment, self-efficacy, and PA represented the child psychosocial and PA factors. Summary statistics were presented for all variables of interest. All statistical analyses were performed using SAS version 9.4.

Ancillary Qualitative Exploration

To gain insight into the challenges faced with recruiting and engaging AA fathers for the present study, I invited fathers to participate in a follow-up interview. After survey data collection was complete the research team asked the recruited fathers if they would be willing to participate in the interview, with two fathers agreeing to join. The purpose was to understand their experience through study recruitment to study completion. Fathers were asked questions (see Appendix H) that highlighted their motivation to participate, any barriers to study participation, and the effective ways to engage, recruit, and retain AA fathers in research.

The semi-structured interview was conducted using the online videoconference platform *Zoom Video Communications*©. Videoconferencing platforms have the capability to effectively mimic in-person interactions, allowing researchers and participants convenience and substantial engagement through sight and sound (Marhefka et al., 2020). Researchers have stated that *Zoom Video Communications*© is an effective option for facilitating online focus groups due to meeting adequate storage and ethical privacy requirements, stable technology to accurately record video and audio, and enhanced accessibility by allowing multiple platforms to be used to access the software (Matthews et al., 2018). Prior to participating fathers gave consent to be recorded during the virtual session. Answers to the questions were automatically recorded through the software and stored in a secure database for future retrieval and analysis. Only two affirmative responses emerged and the interview with these respondents lasted 60 minutes. The interview recording was transcribed and a thematic analysis using an inductive approach was conducted. This involved coding the data and presenting themes that were identified from the questions the participants discussed. Each theme was aimed at understanding AA father recruitment and engagement in research

Results

Participant Demographic Characteristics

Eleven father-daughter pairs who identified as AA participated in the study. Fathers completed measures detailing characteristics of their household demographics (Table 1). Mean body mass index (BMI) for fathers was 30.8 ± 4.8 kg/m^2 with all fathers having overweight or obesity. The sample was highly educated with most fathers having a college degree (72.7%). A majority of fathers were married living with the biological mother of their daughter (72.7%) and reported that their daughter lives with them every day (91%). Households were primarily composed of two or more children(81.8%). Of the sampled daughters the average age was 11 ± 0.8 years (Table 2). The mean BMI-for-age percentile was 52.5 ± 38.3 with almost half having healthy weight (45.4%). Almost two-thirds of daughters (63.6%) currently were in sixth grade and over 80% participated in organized sports (81.8%).

Table 1. Household Characteristics of AA Fathers (n=11)

Characteristic	Mean ± SD
Age (years)	43.8 ± 4.6
Body Mass Index (BMI; kg/m^2)	30.8 ± 4.8
BMI Category[a]	**n (%)**
Overweight	5 (45.5)
Obesity	6 (54.5)
Highest Level of Education	
High school diploma or equivalent	1 (9.1)
Some college but no degree	2 (18.2)
Bachelor’s degree or higher	8 (72.7)
Household Income (last year)	
Less than $50,000	2 (18.2)
$50,000 - $149,000	3 (27.3)
$150,000 and above	6 (54.5)
Marital Status	
Single/never married	1 (9.1)
Married/ partnered	8 (72.7)

Divorced/ Separated	2 (18.2)
Household Arrangement	
Dual-parent household	
Yes	9 (81.8)
No	2 (18.2)
Lives with daughter's biological mother	
Yes	8 (72.7)
No	3 (27.3)
Lives with daughter every day	
Yes	10 (90.9)
No	1 (9.1)
Number of children < 19 years in household	
1	2 (18.2)
2	7 (63.6)
3 or more	2 (18.2)

[a]BMI range for overweight category is ≥ 25 and ≤ 29.9 kg/m^2. BMI range for obesity category is ≥ 30 kg/m^2.(Centers for Disease Control and Prevention).

Table 2. Demographic Characteristics of AA Daughters Aged 10-12 years (n=11)

Characteristic	**Mean ± SD**
Age (years)	11 ± 0.8
BMI-for-Age Percentile[a]	52.5 ± 38.3
BMI Category[b]	**n (%)**
Underweight	2 (18.2)
Healthy weight	5 (45.4)
Overweight	3 (27.3)
Obesity	1 (9.1)
Highest Grade Completed	
Third	1 (9.1)
Fourth	1 (9.1)
Fifth	7 (63.6)
Sixth	2 (18.2)
Organized Sport Participation	
Yes	9 (81.8)
No	2 (18.2)

[a]BMI-for-age (percentile) was calculated using the BMI Percentile Calculator for Child and Teen-Metric Version. [b]Underweight is calculated as < 5th percentile. Healthy weight is ≥ 5th and < 85th percentile. Overweight is ≥ 85th and < 95th percentile. Obesity is ≥ 95th percentile. (Centers for Disease Control and Prevention).

Perceived Parental Influence of Daughter PA Beliefs and Behaviors

Overall daughters reported positive perceptions of the relationship with their fathers and strong PA beliefs (Table 3). Daughters reported positive relationship quality with their father, as it relates to their participation in sports or PA, as *somewhat* to *pretty true* (4.03 ± 0.6 out of a possible 5). Mean paternal social support for PA was 3.5 ± 0.5 out of 5, indicating daughters perceiving their fathers support for PA *sometimes* to *every day*. On average daughters *agreed a little* to *a lot* that they enjoyed PA (4.5 ± 0.7 out of 5) and had self-efficacy for overcoming barriers related to PA (4.2 ± 0.6 out of 5). Daughter weekly PA behavior was stratified into different intensity levels of hard, moderate, mild, and moderate to vigorous (MVPA) PA (Table 3). Total PA per week reported on average 7 ± 3.9 hours. The average MVPA per week was 4.9 ± 3.3, represented by only 36.4% of daughters meeting the minimum guidelines 60 minutes per day of MVPA for children & adolescents (USDHHS, 2018).

Table 3. Daughter Perceptions of Parental Influence and Psychosocial and PA Outcomes

Parental Factors	**Mean ± SD** **n=11**
Father-daughter Relationship Quality Score[a]	4.03 ± 0.6
Paternal Social Support[b]	3.5 ± 0.5
Psychosocial Factors	
PA Enjoyment[c]	4.5 ± 0.7
PA Self-efficacy[d]	4.2 ± 0.6
PA Behavior (hours/week)[e]	
Hard / Strenuous Intensity	2.5 ± 1.8
Moderate Intensity	2.5 ± 1.8
Mild / Low intensity	2.1 ± 0.7
MVPA	4.9 ± 3.3
Total PA	7 ± 3.9
	n (%)
Meets PA guidelines for children/adolescents Yes No	 4 (36.4) 7 (63.6)

[a]Sum of responses to 14 questions/14 = mean ± SD, where response options were 1 = not at all true, 2 = a little true, 3 = somewhat true, 4 = pretty true and 5 = really true. [b]Sum of responses to 5 questions/5 = mean ± SD, where response options were 1 = never, 2 = once, 3 = sometimes, 4 = almost every day and 5 = every

day. [c]Sum of response to 6 questions/6 = mean ± SD, where response options were 1 = agree a lot, 2 = agree a little, 3 = neither agree nor disagree, 4 = disagree a little and 5 = disagree a lot. [d]Sum of responses to 8 questions/8 = mean ± SD, where response options were 1 = disagree a lot, 2 = disagree a little, 3 = neither agree nor disagree, 4 = agree a little and 5 = agree a lot. [e]Response options were none, 1 hour, 2 hours, 3 hours, 4 hours, 5 hours, 6 or more hours (analyzed as 6 hours). MVPA calculated from combined hard and moderate PA values. Total PA calculated from the sum of hard, moderate, and mild PA. PA guidelines for children/adolescents is minimum 60 minutes per day of MVPA (USDHHS, 2018).

Correlations Between Parental Influence with Daughter PA Outcomes

Due to the small sample size, bivariate correlations were calculated among parental influence, daughter psychosocial variables, and daughter PA (Table 4). Statistical significance was not found among any of the associations. In lieu of the lack of significant findings, magnitude of effects is reported to discuss practical relationships among variables within this small sample. Among parental variables, paternal social support for PA had a moderate association (r = .54) with father-daughter relationship quality. When calculating the associations between parental variables and the daughters' PA beliefs and behavior, paternal social support had low associations with PA enjoyment (r = .39), PA self-efficacy (r = .26), and total PA (r = .31). Father-daughter relationship quality was not correlated with any of the daughter psychosocial or daughter PA outcomes.

Table 4. Bivariate Correlations of Parental Factors and Daughter Psychosocial and PA Outcomes (n=11)[a]

	FD RQ[b]	PSS[c]	PAE[d]	PA SE[e]	TPA[f]
FD RQ	--	.54	.01	-.17	-.01
PSS		--	.39	.26	.31
PAE			--	.28	.29
PA SE				--	.52
TPA					--

[a]No correlations were found to be statistically significant. [b]FDRQ = Father-Daughter Relationship Quality. [c]PSS = Paternal Social Support. [d]PAE = Physical Activity Enjoyment. [e]PASE = Physical Activity Self-Efficacy. [f]TPA = Total Physical Activity

Qualitative Findings

To understand the challenges the research team faced with recruitment and retention of AA fathers, a small focus group (n=2) was conducted after survey data collection concluded. Fathers were asked questions related to motivation to participate in the study, strategies to improve recruitment, challenges to completing study materials, barriers to participation in research for AA men, and ways to engage more AA fathers in research. Through these questions eight themes and 3 subthemes emerged (Table 5). Each theme sheds light on engaging and recruiting AA fathers.

Education level arose as a theme. The majority of survey participants and both fathers who participated in the focus group had completed a bachelor's degree or higher. The focus group members discussed being familiar with research and having connections with a university community. This was emphasized as a facilitator towards participants' interest and motivation for participating. "*…a black man that's advancing his education I felt it was important, you know, to participate just on that alone.*" and "*There's no coincidence that three of us*[including the focus group moderator] *on here have college degrees.*"

When probing for strategies to target AA populations that may not have a higher education, the theme of **distrust of research** arose as a barrier to AA communities' willingness to participate in a study such as the present one. One father discussed the historical trauma related to research faced in the AA community. *"As a Black man, we can be kind of skeptical. Man think about Black people and our history. We got this long history of you know, being taken advantage of when it comes to medicine and health industry studies voluntary or involuntary. What is it the Tuskegee experiments?"*

This distrust of the research community was identified as something to overcome and could be a major obstacle when trying to recruit participants to share information about their lives. In order to overcome this challenge, establishing a trusting relationship or sharing a common community identification was highlighted. Therefore, **building rapport** arose as a theme to connect and reach AA fathers. *"It probably goes back to how I was approached, where I was approached and who I was approached by that opened me up to being a willing participant. AA male that we know. Very personable. You kind of put the message out there, like I needed some help"*

Using church connections emerged as a subtheme to building rapport through shared community identification and churches were a main location fathers detailed with being useful for this community both for effectively engaging and recruiting AA fathers. *"One of my suggestions is getting on the screen at all these different black churches in the Twin Cities. That's a really good way in the future to get the attention of everybody. You got a captive audience - you know Sunday morning congregation." "...someone who is a member of my church. It helped with my response time in terms of jumping on it fairly quick."*

The example of getting in front of the church congregation also highlighted a key theme of the **convenience factor** or making it as easy as possible for people to participate**.** *"Flash that flyer on the screen* [at church] *and people get their phones out and kind of you know, scan the QR code right then and there on the screen." "Make it convenient. Setting up a table and having your computer right there to catch them in the moment."*

When discussing the barriers to survey completion and challenges with participating the theme of having **busy schedules** arose. This theme emerged as a subtheme for convenience as it reinforced the importance of making study participation convenient. "*Biggest challenge is just time. I just had to settle in and figure out when I was going to do it and then figure out when my when my daughter and I were going to be available*."

Having **access to technology** to complete study measures was identified as a facilitator to work around their busy schedules and emerged as a second subtheme of convenience. One father described this theme within his household. *"Yeah I work from home so there's constantly a laptop, or computer, that is in our house at all times."* Another father shared how use of mobile devices could enhance accessibility and convenience. *"Maybe if you have phone numbers somehow and was able to text, the link so now it's actually on my phone and I could just do it. Convenience factor pushed to people's devices."*

The fathers in the focus group both stressed the importance of convenience and how busy their schedules were, so a theme related to **incentives** to participate also surfaced. The fathers in the group gave different opinions on the incentives being worth their time with one father suggesting a father-specific incentive. "*Maybe raffling off some Timberwolves tickets. You know some type of sporting event tickets. Your name gets put into the drawing for these Timberwolves Lakers tickets. I know a lot of people who would be ready to line up."* Another father did not share the same sentiment about a raffle but was more satisfied with a guaranteed incentive. *"I just liked the fact that it was guaranteed. There was a guaranteed stated amount."*

Making sure the **importance of the study** was clear was another theme that arose from the focus group. Fathers expressed that this subject matter (kinesiology) may not be familiar topic of discussion within AA households and the importance of participating in the study needs to be properly presented. "*What this research is about and what the scope is and what you're trying to get out of it. In terms of building that clarity or that trust for somebody to want them to go in and participate."*

One of the main variables of interest in the study was father-daughter relationship quality. Focusing on this aspect of the relationship with AA fathers highlighted two outcomes within the theme of the **relationship with daughter.** The focus group revealed that fathers who are more involved and active in their daughters' lives may be more prone to participate and share that information. *"I am very active in her life, she's very active. Anything that I can help do that's going to provide some information around her I would want to be a part of and help contribute."*

However, fathers expressed that there may be a reluctance to participate when AA fathers aren't as involved in their child's life, or the child is not as physically active. *"A guilt factor might creep in and prevent them from wanting to participate."*

The final theme that surfaced from the focus group discussions was **reaching fathers through mothers**. Both fathers who participated in the group were married to their daughter's biological mom and emphasized the importance of utilizing moms to get fathers involved in a study like this. *"You know the wives, they will get on those husbands, and you know say hey you got to do this, this is important."* Organizations or sororities composed of AA mothers were also presented as a future resource to foster engagement from AA fathers. *"I think you could really get to these guys through these* *women organizations like Jack and Jill an African American mother's organization. They plan events for their families bringing families together."*

Table 5. Qualitative Themes

Themes and Subthemes	Comment[a]
Theme 1: Education Level	*"We've been through and have wives and spouses that are of the mindset of higher learning and education and things like that. I think it makes it a lot more easier to relate."*
Theme 2: Distrust of Research	*"There is probably a level of distrust with disclosing and sharing information personal information for some type of medical behavioral type studying."*
Theme 3: Building Rapport	*"It probably goes back to how I was approached, where I was approached and who I was approached by that opened me up to being a willing participant."*
Subtheme: Church Connections	*"Yeah, I was definitely going to help out, given the fact that we attend the same church."*
Theme 4: Convenience	*"If you can get them like doing this right now, they don't have to go search for the email."*
Subtheme: Busy Schedules	*"It was just a matter of making the time to do it so that was the challenge between work and traveling."*
Subtheme: Access to Technology	*"We have several laptops, and all our girls have iPads, technology wise no issues as far as access to technology."*
Theme 5: Incentives	*"If you could offer $25 for each if you got some dads who don't live in the same house as their daughter, separating the incentives might be a good way to approach it."*
Theme 6: Clarity of Study Importance	*"…needs to be clarity around the subject matter. I know kinesiology is probably not a household topic."*
Theme 7: Relationship with Daughter	*"Black fathers start thinking like I'm really not that active in my daughter's life. I don't want to do that if it's just going to reveal that I'm not doing enough"*
Theme 8: Reaching Fathers via Mothers	*"You know the wives tell us to do it so it's going to get done."*

[a]Comments represent codes taken from the transcript that give an example of the theme.

Discussion

The purpose of the present study was to investigate the relationship between father influence (relationship quality and social support) and daughter's PA beliefs and behavior. The aims of this study were twofold: first, the study investigated if a measure of relationship quality between parent and child would be identified as a correlate of paternal social support for child PA. Secondly, the study explored whether both factors of parental influence, relationship quality and social support for PA, were associated with child PA enjoyment, PA self-efficacy, and total weekly PA amount. It was hypothesized that there would be a statistically significant relationship between the parental factors, and they both will be positively and significantly related to each of the daughter PA psychosocial and behavioral variables. Neither hypothesis was supported. However, the findings did provide practical evidence for paternal social support for PA and its relationship with father-daughter relationship quality, daughter PA self-efficacy, PA enjoyment, and overall PA levels.

Aim One

Relationship Between Parental Influence Variables

The results did not identify a statistically significant relationship among the variables but when considering effect sizes between the correlations, a positive moderate degree of association was observed. This aligns with past research that has shown evidence for positive relationships between forms of parental support such as encouragement, and the individual characteristics that define the quality of the relationship between parent and child, such as closeness or nurturance. de la Haye et al. (2014) in their investigation of parent-child dyads of Mexican American families, discovered that fathers who described their relationship with their child as close were two times more likely to exhibit more parental encouragement of child PA. Likewise, Lawman and Wilson (2014) when identifying environmental support for MVPA in obese and underserved adolescents, found that when the parenting relationship is identified as warm and caring through parent nurturance, there was a significant association with parent social support for PA. Exploring relationships through Expectancy Value theory, Kimiciek and Horn (2012) found that when children perceive high support parenting, characterized through warmth and sensitivity, they also perceived more open communication with parents which was correlated with greater PA self-perceptions. This relationship between supportive parenting styles and open parent-child communication aligns with the findings of parental support being correlated with positive aspects of the parent-child relationship.

These studies show that it may be more informative to identify specific aspects of the parent-child relationship such as closeness, nurturance, or communication styles rather than overall quality and investigating their associations with different forms of parent support, such as encouragement. However, they provide evidence that there are inter-individual characteristics of the relationship between parent and child that can be correlates of parental support for PA.

Aim Two

Parental Influence Factors Associated with Child PA Beliefs and Behavior

There were not any statistically significant correlations found between any of the variables of parental influence and the child psychosocial and PA outcomes. However, through the bivariate correlations, effect sizes were observed that provide practical evidence of the magnitude of the relationship between paternal social support for PA and the child PA outcomes.

Paternal Social Support and Daughter PA Psychosocial Outcomes

Paternal social support for PA was found to have positive low associations with each child variable. Among the psychosocial variables a greater association was observed with PA enjoyment compared to self-efficacy. Parental social support has been shown to have greater associations with PA enjoyment compared to self-efficacy when investigating youth PA behavior through the YPAP model (Silva et al., 2014). In this study the youth were an older high-school sample and the researchers utilized two forms of support (parent and peer) as the reinforcing factors of the model. Investigating two sources of support extended the present study. Unlike for parent support, the peer social support model observed a greater association with self-efficacy compared to enjoyment. This may emphasize that as youth age parental social support may remain an important influence for PA enjoyment. The relationship between parental support and child perceptions of ability have had contrasting findings when researchers define child ability beliefs through the construct of perceived competence (Jekauc et al., 2019; Shen et al., 2018; Welk et al., 2003).

Welk et al. (2003) utilized the YPAP model to explore mechanisms through which parents impact their child's PA levels in elementary children (grades 3 through 6). For the predisposing factors of the model, they investigated child attraction to PA and perceptions of competence through Harter's Perceived Competence scale for children, in contrast to enjoyment and self-efficacy in the present study. They found for both boys and girls parental support had a greater association with attraction to PA than perceptions of competence (Welk et al., 2003). Similar findings were observed from a longitudinal study of German adolescents testing a developmental model of PA based on Harter's model of global self-esteem. (Jekauc et al 2019). Within their findings parental social support was found to be a greater determinant of PA enjoyment than general sports competence. Although investigating similar associations between perceptions of competence and PA enjoyment, Shen et al. (2018), found in their longitudinal study of a diverse population of fourth grade students (n=320, over 75% minority), parental social support held greater associations with perceptions of competence at each time point. These findings show that caution needs to be taken during inference as the associations may differ depending on the construct used to assess child ability beliefs. However, the positive associations between parental social support and the daughters' psychosocial beliefs in the current study align with previous theory-driven literature of the parental influence.

In a longitudinal study Davison et al. (2006) investigated parental support of girls PA outcomes through mechanisms described in both SCT and EVT at the ages of 9 and 11. They found girls increased perceptions of competence at age 9 predicted greater parental support and PA participation at each time point supporting reciprocal determinism found in SCT, however parental support did not predict competence or PA behavior at each either point, failing to support EVT (Davison et al., 2006). Fredericks and Eccles (2005) found similar results in their study observing how parent role modeling, beliefs, and provision of experiences are related to child self-perceptions. They observed that children found to have high ability beliefs reported more promotive factors for sport/PA participation which was related to increased PA participation and an inverse relationship being observed for children found to have low ability beliefs. This highlights a nuanced relationship between parental support and child PA beliefs and behavior indicating that parents may provide more support when child PA and sport competence levels are increased yet also indicates that it is important for parents to be encouraged to provide more support when child perceptions are lower, so children are not at risk for future physical inactivity.

Paternal Social Support and Daughter PA Behavior

The relationship between paternal social support and total PA level was found to have a low degree of association in a positive direction. These findings align with consistent evidence found in reviews of child and adolescent PA correlates, showing positive associations between parental and father support with overall physical activity levels (Mendonça et al., 2014; Rhodes et al., 2020). This positive association in the present study may also be due to the paternal social support being assessed from the perspective of the child. Research has shown that the child's perception of parental support is valuable due to a positive effect on both boys and girls self-reported PA (Wilk et al., 2018). However, Sallis et al. (2000) stated due to the complex nature of PA behavior differences may be observed in the relationship between social support and child PA depending on how PA is measured and analyzed, the characteristics of the sample, and how environmental support factors are represented.

The positive association found in the present study aligns with other theory-guided studies showing social support being influential to child PA behavior. Gao (2012) in a study based on SCT theory observed that social support was both positively correlated with self-efficacy and objectively measured PA in urban Latino fifth and sixth graders. Gao (2012) found that significantly greater variances in daily PA levels were explained when social support is included in their regression models. Davison et al. (2003) investigating parental influence through EVT, found similar results, as when girls reported at-least one parent high in support, PA levels were increased. This study also showed that fathers were reported to provide more levels of modeling compared to logistical support for mothers, yet both were associated with increased PA levels and there were no significant differences between parents (Davison et al., 2003). However, these results were contrasted in a future longitudinal study of girls aged 9 and 11, where parental support did not predict PA levels at either time point. Although in the same study, when child competence was greater both parental support and PA levels at each time point were greater (Davison et al., 2006). These studies show that generally theories support parental social support as a correlate of child PA behavior, however inconsistencies can be present based on how PA is assessed.

The present study used a self-report measure to assess total weekly hours of PA and found a low association with parental social support, yet failed to reach statistical significance. Dozier et al. (2020) used a similar self-report measure of PA based on the GLTEQ in their secondary data analysis from a school-based weight management program for children between the age of 8-12 (n=132). However, their investigation assessed if perceptions of parental support increased the odds of children meeting the national PA guidelines. Compared to boys, the odds were higher for girls meeting the PA guidelines when perceiving parental support for PA. However, the comparisons did not reach statistical significance, rivaling the findings of the present study. Other studies using self-report measures have found significant and direct relationships between self-reported child PA/MVPA with parental social support (Jekauc et al., 2019; Wilk et al., 2018). Jekauc et al. (2019) learned from their test of the Weiss-Harter model of PA in two cross-sectional studies of children, when a direct-path is added from social support to MVPA, the models explain 38% and 42% of the variance of MVPA respectively compared to the old models explaining 12% and 18%. Similarly, Wilk et al. (2018) found that when children perceive support for PA there is a positive indirect effect on their self-reported PA levels.

Similar results have also been observed showing parent support impacting consistent PA participation and directly predicting greater amounts of objectively measured MVPA in adolescent children (Kwon et al., 2016; Silva et al., 2012). However, when considering other factors of the adolescent sample such as having obesity/overweight and lower socioeconomic status, researchers Lawman and Wilson (2014) found parental support was only correlated with the objectively measured light intensity PA levels. These findings emphasize looking at each level of intensity of PA to disentangle the relationship with parental social support. This also applies to the different forms of support, where tangible forms such as watching/ supervising, co-participation, compared to intangible such as verbal encouragement, have both been found to be more strongly associated with child sport participation or MVPA (Kwon et al., 2016; Wilk et al., 2018). Comparing each intensity level of PA with different forms of support and utilizing objective measures of PA could help with understanding the relationship between parental social support and youth PA behavior.

Father-Daughter Relationship Quality and Daughter PA Outcomes

Father-daughter relationship quality was the second parental factor hypothesized to have a relationship with the daughter psychosocial and PA outcomes. The present study found little to no association with father-daughter relationship quality and daughter self-efficacy, PA enjoyment, or total PA level. This finding has differed from previous research that examined characteristics of the parent-child relationship and child sport motivational outcomes. Ullrich-French and Smith (2006) observed that soccer enjoyment and perceptions of sport competence were predicted by the father-child relationship and that increased positive father-child relationship quality was significantly associated with increased perceived competence. These differences could be attributed to the present study lacking a robust sample and the design exploring overall physical activity motivational outcomes which could encompass various sports and activities compared to a singular sport participation, such as soccer.

There remains a paucity of studies that have assessed father-daughter relationship quality and its association with child PA outcomes. However, research looking at characteristics of the relationship between parent and child (i.e., nurturance, involvement, and closeness) with PA outcomes have found mixed results (Blackshear, 2019; de la Haye et al., 2014; Lawman & Wilson, 2014). Blackshear (2019) found that the more involved AA fathers were, the higher the levels of PA for the adolescent girls. Lawman and Wilson (2014) observed that parent nurturance, although significantly associated with all measured parental behaviors (parental support, limit-setting, monitoring) which were significantly associated with light PA, was not correlated with any of the PA parameters. Positive results have been observed when investigating co-engagement of PA. Researchers de la Haye et al. (2014) observed in Mexican American families, when parents indicate that they share a close relationship with their child there were significantly greater odds of both parent and child participating in PA together. Due to non-statistical findings in the present study and mixed results in previous research, further investigation into the impact of relationship quality between fathers and daughters and the daughter PA outcomes needs to be conducted. Future research should focus on including a more a more robust sample, investigate different aspects of the parent-child relationship, highlight different intensities of PA and sport participation, and investigate the PA levels of both the parent and child.

Qualitative Exploration of AA Fathers

Representation in research studies is necessary to identify and address health disparities specific to communities of color. Historically, AA populations, especially AA males, have been underrepresented in health research (Cui et al., 2019; Webb et al., 2019; Webber-Ritchey et al., 2020). Increased reluctance to participation is due in part to barriers associated with historical research abuse and systemic racism leading to deeply rooted mistrust, lack of clear information about research purposes, inadequate financial considerations, negative experiences with health care and misconceptions about the nature of the experiment, and insufficient recruitment efforts (Otado et al., 2015; Webber-Ritchey et al., 2020). This outcome is compounded when investigating parental influence as fathers, regardless of race or ethnicity, are underrepresented in the literature investigating child health outcomes (Morgan & Young, 2017; Morgan et al., 2017; Wong et al., 2013). To understand these disparities with study recruitment and participation, the present study conducted an ancillary qualitative exploration with father-participants, after experiencing inherent challenges meeting adequate sample size.

The interview findings corroborated the traditional barriers with recruitment found within the literature among AA males in health research. Almost all participants had a higher education background with the majority completing a bachelor's degree or higher. This experience with higher learning and prior connections with individuals in academia could explain their willingness to participate in a research study. Past experience with research can influence likelihood of future participation through improved trust with researchers(Webb et al., 2019). Distrust of research was identified as a key barrier to AA fathers' recruitment. Overcoming distrust is a vital recruitment strategy, as potential participants frequently refer to the research abuse AA populations have faced, such as in the Tuskegee experiments, which was referenced in the interview discussion (Cui et al., 2019; Otado et al., 2015; Webber-Ritchey et al., 2020).

Building rapport was identified as a strategy to overcome this distrust, especially through utilizing church communities. Church settings have been highlighted as a place where informational sessions can be held to explain research importance, show transparency, and meet potential participants in a culturally housed setting, reflecting successful strategies used in the past to address the clarity of the study importance(Otado et al., 2015). Lack of clearly presented information or verified understanding of study purposes, objectives, and the nature of the project are common barriers to recruiting this population (Webber-Ritchey et al., 2020). Providing multiple opportunities to inform community partners of the study and having informational sessions that make unfamiliar research topics relevant and clear can serve as barrier reduction strategies.

Adequate incentives were identified as a strategy to better engage AA fathers. It was discussed that providing guaranteed and separate incentives for both father and daughter, possibly tailoring the father incentive towards common interests of the fathers, would be effective in engaging AA fathers. Research has shown that AA populations especially males have found that compensation or incentives should be higher for their time investment and the incentive should be worth their time amid busy work and life schedules (Otado et al., 2015; Webb et al., 2019). Due to busy schedules expressed by the fathers, the need for study participation to be convenient was identified. Increased access and use of technology to shorten steps to interact with study materials were discussed by the fathers. The fathers explicitly stated obtaining direct contact information from potential participants at a community event or at a church gathering and then following up through text message may improve success. Webber-Ritchey et al. (2020) emphasized the use of technology as an effective recruitment strategy, highlighting that participant who are comfortable with technology may be more likely to participate and text messaging/ smart phone usage could be used in future research to successfully reach out to potential AA participants in faith based and community settings.

Two findings that were unexpected were the focus on the father-daughter relationship being a barrier to participation and strategy of engaging fathers through mothers. Both fathers that participated in the interview verbalized that they were highly involved in their daughters' lives and over 90% of the recruited study sample lived with their daughter full-time. The fathers interviewed stated that there could be a guilt factor keeping AA fathers who are not as involved from participating. They may not want to highlight this or elucidate parts of their relationship that they lack or need to improve. This emphasizes the importance of all recruitment material and research staff communicating a strength-based focus on the father-daughter relationship (Morgan &

Young, 2017). Morgan and Young (2017) also stated in their review of insights and recommendations for engaging fathers in research that investigates paternal influence of child PA and dietary outcomes; fathers should be targeted specifically for recruitment as fathers assume "the parent" in recruitment materials references mothers and not them. This was a contrast to what the AA fathers in the focus group emphasized. They felt that mothers, predominantly their wives, would be able to get them to participate in the study because husbands tend to listen to what their wives tell them to do. However, this strategy may not apply to the fathers who may not be married, living with, or in good relations with the mother of their children.

Strengths of the Study Design

There were strengths associated with the study. The age range of the daughter sample was purposefully selected representing a key developmental period of late childhood to early adolescence when parental influence remains salient. The study was novel in nature for parental influence literature, by highlighting the relationship quality between father and daughter within the understudied AA community. Lastly, through a semi-structed interview, AA fathers provided insight into effective recruitment strategies for this understudied population. This added an additional qualitative component to the project, providing future methodological benefits.

Limitations

The present study had several limitations that must be considered. First, the small sample size limited statistical power for higher-level analysis and impacted significance between the findings. Second, the study was cross-sectional in nature, relying on self-reported PA information, which can be influenced by recall bias. If self-reported PA is the only means through which PA information can be obtained there are more robust self-reported PA measures such as the Physical Activity Question for Children, or Adolescents (PAQ-C or PAQ-A) that have increased reliability and validity with youth but may be more time intensive to complete (Janz et al., 2008). However, if the resources are available, researchers have suggested using objective PA measures, such as accelerometry, with self-reported information may provide the most comprehensive description of children's PA behavior (Marroso et al., 2021). Third, participants completed the survey virtually and the research team could not truly control for fathers being present during daughter survey completion. Finally, the majority of fathers sampled had a college degree, were married to the biological mother of the daughter, and reported a high-income. This limits generalizability to AA fathers who did not attend college and are not in a current relationship with the biological mother of their daughter. These findings also limit the generalizability to large majority of AA households that are lower income, as over half of the fathers within the study made greater than double the median income for AA populations in the U.S. (Schrider et al., 2021).

Future Directions

The strengths and limitations of this study indicate a need for further investigation in this area. A larger sample may provide insight into the true relationship between AA fathers social support for PA and their daughters PA outcomes. Future studies could compile different forms of support as a composite measure and investigate associations with different aspects of the parenting relationship. This may shed light on the specific pathways which support of PA is impacted by the parent-child relationship. Future studies should also conduct further qualitative investigations into effective recruitment strategies of AA father from more diverse socioeconomic backgrounds such as less educated and lower income. Family structure types could also be considered for future investigation. The present study mimicked traditional family structures as most households were composed of a nuclear family (biological mother and biological father). Horn and Horn (2007) have indicated in their review of parental influence on children's sport and PA participation, behavior, and self-perceptions, that additional research needs to be conducted on nontraditional families (single-parents, LGBTQ parents, and multigenerational household) as majority of the research reflects the composition of families within the present study (two-parent, heterosexual, middle to upper class). Family structure has previously been indicated to influence the risk of having childhood obesity, which warrants investigating how family structure might influence social supportive behaviors and influence on child PA outcomes (Chen & Escarce, 2014). Lastly, researchers could explore relationships between AA fathers PA psychosocial beliefs and behavior with that of their daughters and investigate for congruence, as well as include the objective assessment of PA.

Conclusion

This study provided an exploratory analysis into the parental influence of AA fathers and the relationship with their daughters PA beliefs and behavior. Ultimately, the study was not able to completely support the hypotheses, however the findings do suggest that further investigation with these variables need to be explored.

The AA fathers in the study were perceived to provide high support and had overall high levels of relationship quality with their daughters. This is contrary to many stereotypical beliefs portrayed in the media that communicate AA fathers as absent and not involved in their daughters' lives. Daughters' PA psychosocial beliefs and PA behavior were positively influenced by the support received from their father. Although not statistically significant, this provides rationale to investigate the mechanisms through which AA fathers can positively impact their daughters' lives. Through this, research can be conducted that highlights these characteristics specific to AA fathers that showcase their parental influence and significance to child development.

Qualitative investigation shed light on the challenges faced by the research team and opened the door to future opportunities to employ effective recruitment strategies informed by AA fathers. Therefore, researchers can better understand the factors that impact their health, PA behavior, and their children's PA motivation and health outcomes (Webber-Ritchey et al., 2020). Tapping into AA communities with strategies informed by AA populations can allow researchers to develop interventions that may address culturally sensitive differences, breaking down barriers to providing equitable health opportunities for AA families. In AA communities, the emphasis on single-parent households and absent fathers skews public perception of the paternal influence of AA men. Continued research in this area, effectively engaging AA fathers can change the narrative.

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Appendix A: Daughter's Survey Psychosocial and PA Beliefs

CHILD PA BELIEFS AND BEHAVIOR QUESTIONNAIRE (must be reported by daughters)

Physical Activity (Please Circle One Response)

In the past week, how many hours did you spend doing the following activities

1. **Hard / Strenuous exercise**
   (Ex: biking fast, running, jogging, swimming laps, soccer, and basketball)

(None) (1 hour) (2 hours) (3 hours) (4 hours) (5 hours) (6 or more hours)

2. **Moderate intensity exercise**
   (Ex: walking quickly, dancing, baseball, gymnastics, and easy bicycling)

(None) (1 hour) (2 hours) (3 hours) (4 hours) (5 hours) (6 or more hours)

3. **Mild/ low intensity exercise**
   (Ex: walking slowly, bowling, stretching, and household chores)

(None) (1 hour) (2 hours) (3 hours) (4 hours) (5 hours) (6 or more hours)

Father-Daughter Relationship Quality ((Please Circle One Response)**)**

These questions ask about your relationship with your father in sports/ physical activities. We would like you to think about this relationship as you answer the questions, especially as it relates to your participation in any sport or physical activity. They are about what you and your father may do or say with each other. Circle the answer below each statement that best indicates how you feel about you and your father in sports/ physical activity.
(Ex: My father and I watch sports on TV together)

4. My father and I can talk about anything

(Not at all true) (A little true) (Somewhat true) (Pretty true) (Really true)

5. My father and I have common interests

(Not at all true) (A little true) (Somewhat true) (Pretty true) (Really true)

6. My father and I do fun things

(Not at all true) (A little true) (Somewhat true) (Pretty true) (Really true)

7. My father and I make up easily when we have a fight.

(Not at all true) (A little true) (Somewhat true) (Pretty true) (Really true)

8. My father and I get mad at each other

(Not at all true) (A little true) (Somewhat true) (Pretty true) (Really true)

9. My father and I do similar things

(Not at all true) (A little true) (Somewhat true) (Pretty true) (Really true)

10. My father and I try to work things out when we disagree

(Not at all true) (A little true) (Somewhat true) (Pretty true) (Really true)

11. My father and I fight

(Not at all true) (A little true) (Somewhat true) (Pretty true) (Really true)

12. My father looks out for me

(Not at all true) (A little true) (Somewhat true) (Pretty true) (Really true)

13. After I make mistakes, my father encourages me

(Not at all true) (A little true) (Somewhat true) (Pretty true) (Really true)

14. My father and I have the same values

(Not at all true) (A little true) (Somewhat true) (Pretty true) (Really true)

15. When we have an argument, my father and I talk about how to reach a solution

(Not at all true) (A little true) (Somewhat true) (Pretty true) (Really true)

16. My father and I have arguments

(Not at all true) (A little true) (Somewhat true) (Pretty true) (Really true)

17. My father and I think the same way

(Not at all true) (A little true) (Somewhat true) (Pretty true) (Really true)

18. My father and I tell each other secrets

(Not at all true) (A little true) (Somewhat true) (Pretty true) (Really true)

19. My father and I spend time together

(Not at all true) (A little true) (Somewhat true) (Pretty true) (Really true)

20. My father has confidence in me during sports/ physical activities

(Not at all true) (A little true) (Somewhat true) (Pretty true) (Really true)

Perceived Paternal Social Support (Please Circle One Response)

In this section, I would like to know about your father's weekly behavior as it relates to supporting your sports/ physical activity participation.

21. During a typical week, how often does your father figure encourage you to do physical activities or play sports?

(Never) (Once) (Sometimes) (Almost every day) (Every day)

22. During a typical week, how often does your father figure do a physical activity or play sports with you?

(Never) (Once) (Sometimes) (Almost every day) (Every day)

23. During a typical week, how often does your father figure provide transportation to a place where you can do physical activities or play sports?

(Never) (Once) (Sometimes) (Almost every day) (Every day)

24. During a typical week, how often does your father figure watch you participate in physical activities or sports?

(Never) (Once) (Sometimes) (Almost every day) (Every day)

25. During a typical week, how often does your father tell you that physical activity is good for his health? **OR** During a typical week, how often does your father talk with you about your physical activity?

(Never) (Once) (Sometimes) (Almost every day) (Every day)

Enjoyment of Physical Activity (Please Circle One Response)

In this section I will investigate your enjoyment of physical activities by asking you how much you agree or disagree with each statement presented.

26. When I am active, I feel bored.

(Disagree a lot) (Disagree a little) (Neither Agree nor Disagree) (Agree a little) (Agree a lot)

27. When I am active, I dislike it.

(Disagree a lot) (Disagree a little) (Neither Agree nor Disagree) (Agree a little) (Agree a lot)

28. When I am active, it's no fun at all.

(Disagree a lot) (Disagree a little) (Neither Agree nor Disagree) (Agree a little) (Agree a lot)

29. When I am active, it frustrates me.

(Disagree a lot) (Disagree a little) (Neither Agree nor Disagree) (Agree a little) (Agree a lot)

30. When I am active, it's not at all interesting.

(Disagree a lot) (Disagree a little) (Neither Agree nor Disagree) (Agree a little) (Agree a lot)

31. When I am active, I feel as though I would rather be doing something else.

(Disagree a lot) (Disagree a little) (Neither Agree nor Disagree) (Agree a little) (Agree a lot)

Physical Activity Self-Efficacy (Please Circle One Response**)**

For our final section, I will be investigating your beliefs about your ability to do physical activities. You will indicate how much you agree or disagree with each statement.

32. I can be physically active during my free time on most days.

(Disagree a lot) (Disagree a little) (Neither Agree nor Disagree) (Agree a little) (Agree a lot)

33. I can ask my father figure to do physically active things with me.

(Disagree a lot) (Disagree a little) (Neither Agree nor Disagree) (Agree a little) (Agree a lot)

34. I can be physically active during my free time on most days even if I could watch TV or play video games instead.

(Disagree a lot) (Disagree a little) (Neither Agree nor Disagree) (Agree a little) (Agree a lot)

35. I can be physically active during my free time on most days even if it is very hot or cold outside.

(Disagree a lot) (Disagree a little) (Neither Agree nor Disagree) (Agree a little) (Agree a lot)

36. I can ask my best friend to be physically active with me during my free time on most days.

(Disagree a lot) (Disagree a little) (Neither Agree nor Disagree) (Agree a little) (Agree a lot)

37. I can be physically active during my free time on most days even if I have to stay at home.

(Disagree a lot) (Disagree a little) (Neither Agree nor Disagree) (Agree a little) (Agree a lot)

38. I have the coordination I need to be physically active during my free time on most days.

(Disagree a lot) (Disagree a little) (Neither Agree nor Disagree) (Agree a little) (Agree a lot)

39. I can be physically active during my free time on most days no matter how busy my day is.

(Disagree a lot) (Disagree a little) (Neither Agree nor Disagree) (Agree a little) (Agree a lot)

Appendix B: Parent Survey/ Demographics

DEMOGRAPHIC QUESTIONNAIRE (must be reported by fathers)

This first set of questions is about you, the father participants.

1. What is your age?

2. What is your height (ft/in)?

3. What is your weight (lbs)?

4. What is the highest level of education you have completed? **Select One**

A. Less than high school diploma or equivalent
B. High school diploma or equivalent
C. Vocational, technical, business, or trade school certificate;
D. Some college but no degree
E. Associate's degree
F. Bachelor's degree
G. Master's, professional or doctoral degree
H. Prefer not to answer

5. Which of these best describes your household income last year? **Select One**

A. Less than $15,000
B. $15,000 -$24,999
C. $25,000-$34,999
D. $35,000-$49,999
E. $50,000-$74,999
F. $75,000-$99,999
G. $100,000-$149,999
H. $150,000 and above
I. Prefer not to answer

6. What is your marital status? **Select One**

A. Single/never married;
B. Married;
C. Partnered
D. Separated
E. Divorced
F. Widowed
G. Prefer not to answer

7. (**Circle one**) Do you consider your residence: a **single** or **dual-parent household**?

8. Do you live with your daughter's biological mother? **Circle** (Y/N)

9. Does your daughter live with you every day? **Circle** (Y/N)

10. If no, how many days per week or month does she stay with you? **Please type number of days.**

Weekly:_________________
Or
Monthly: _________________

11. Please indicate how many children are living in your household? **Please type number of children in corresponding age and sex categories**

	Newborn to 2	**3 to 4**	**5 to 7**	**8 to 10**	**11 to 13**	**14 to 16**	**17 to 19**
Female							
Male							

Fathers, the last set of questions you complete will be about your daughter that is also in the study.

12. (**Circle One)** Please indicate the age of your daughter. **(10; 11; 12)**

13. What is the approximate weight of your daughter? (**lbs.**)

14. What is the approximate height of your daughter? (**ft/in**)

15. What is the highest grade-level your daughter completed? (Please enter the number)

Grade: ____________________________

16. Does your daughter participate in organized sport, team, or group physical activities? (Ex: Soccer, Basketball, Dance, Gymnastics, Martial Arts) **Circle (Y/N)**

17. Please indicate how many siblings your daughter has? **Please type number of children in corresponding age and categories.**

	Newborn to 2	**3 to 4**	**5 to 7**	**8 to 10**	**11 to 13**	**14 to 16**	**17 to 19**
Sister							
Brother							

Appendix C. Sample Recruitment Flyer

Appendix D. Screening Questionnaire

Recruitment Screening Questionnaire

1. **What is your age?**

   ____

2. **Do you and your daughter identify as African American and/ or Black? (Yes/No)**

   ____

3. **Do you identify as the biological father or primary male caregiver to the child participant?(Yes/No)**

   ____

4. **Does the child participant identify as your daughter? (Yes/No)**

   ____

5. **Please indicate the age of your daughter that will be participating.**

   ____

6. **Do you live with your daughter at-least two days out of the week? (Yes/No)**

   ____

If eligibility is met,

Please enter an accurate email address for future communication:

____

Appendix E: Consent Form

Title of Research Study: African American Fathers Supporting Daughters Physical Activity

Investigator Team Contact Information: PhD, Daheia J. Barr-Anderson
For questions about research appointments, the research study, research results, or other concerns, call the study team at:

Investigator Name: PhD, Daheia J. Barr-Anderson Investigator Departmental Affiliation: Kinesiology Phone Number: 612-301-1309 Email Address: barra027@umn.edu	Student Investigator Name : Tony Harris Jr Phone Number: 910-409-8654 Email Address: harr2926@umn.edu

Supported By: This research is supported by the University of Minnesota.

Key Information About This Research Study

The following is a short summary to help you decide whether or not to be a part of this research study. More detailed information is listed later on in this form.

What is research?

- The goal of research is to learn new things in order to help people in the future. Investigators learn things by following the same plan with a number of participants, so they do not usually make changes to the plan for individual research participants. You, as an individual, may or may not be helped by volunteering for a research study.

Why am I being invited to take part in this research study?

We are asking you to take part in this research study because you are an African American father with a daughter that is 10-12 years old. We are also asking you to allow your 10-12 years old daughter to participate in this study.

What should I know about a research study?

- Someone will explain this research study to you.
- Whether or not you take part is up to you.
- You can choose not to take part.
- You can agree to take part and later change your mind.
- Your decision will not be held against you.
- You can ask all the questions you want before you decide.

Why is this research being done?

The purpose of this research study is to investigate characteristics of the relationship between African American fathers and their daughters and to identify any associations with the daughter's physical activity beliefs and behavior. Learning this will inform researchers on the parenting practices and physical activity socialization context of an understudied population.

How long will the research last?

We expect that you will be directly in this research study for the duration it takes to complete one survey. The entire research study will last from August 2021 through May 2022.

What will I need to do to participate?

You will be asked to fill out either an electronic or paper demographic questionnaire providing information about yourself and your daughter.

More detailed information about the study procedures can be found under "What happens if I say yes, I want to be in this research?"

Is there any way that being in this study could be bad for me?

There are no foreseen risks with participation in this study.

Will being in this study help me in any way?

There are no benefits to you from your taking part in this research. We cannot promise any benefits to others from your taking part in this research.

What happens if I do not want to be in this research?

You can leave the research at any time and it will not be held against you.

Detailed Information About This Research Study

The following is more detailed information about this study in addition to the information listed above.

How many people will be studied?

We expect about 100-120 people (50-60 fathers & daughters) will be in this research study.

What happens if I say "*Yes, I want to be in this research*"?

- If you decide that you want to be in this research, you will be given the option to participate online, at home on paper, or in-person on paper.
- If you are participating online you will be emailed a personalized link to the study and will follow the consent/assent, and survey completion process below but on your electronic device.
- If you decide to participate at-home, you will be provided the study materials and will mail back the completed materials in a provided stamped addressed envelope.
- If you participate in-person you will follow the process below at the time of recruitment and give your completed materials to the research team in-person.
- Once your consent is given for yourself and your daughter, your daughter will provide assent to the study. After consent and assent is received you both can move forward with the survey.
- Father participants will complete the demographic portion of this survey. This is to ensure accurate information is collected describing both fathers and daughters. This is the only questionnaire you as the father participant will complete.
- Daughter participants complete the questionnaires covering their physical activity beliefs and behaviors and perceptions of the parental influence from fathers.
- Survey completion represents all questions answered for both the fathers and daughters.
- All participants with complete data will either be given in-person or mailed a $25 Prepaid Debit Gift Card. If you are participating through the online survey you will be contacted by email to provide an accurate mailing address to receive gift card. If you are participating

at-home with a paper survey, the $25 Prepaid Debit Gift Card will be mailed to the address from which the completed survey materials were received.

- Be asked to participate in a recorded virtual focus group to share your opinion on study recruitment and retention processes. Being in the focus group is not a requirement to receive $25 participant incentive.

What happens if I say "Yes", but I change my mind later?
You can leave the research study at any time and no one will be upset by your decision.

Will it cost me anything to participate in this research study?
- There will be no cost to you for any of the study activities or procedures.

What happens to the information collected for the research?
Efforts will be made to limit the use and disclosure of your personal information, including research study and medical records, to people who have a need to review this information. We cannot promise complete confidentiality. Organizations that may inspect and copy your information include the Institutional Review Board (IRB), the committee that provides ethical and regulatory oversight of research, and other representatives of this institution, including those that have responsibilities for monitoring or ensuring compliance

We may publish the results of this research. However, we will keep your name and other identifying information confidential.

Additional sharing of your information for mandatory reporting
If we learn about any of the following, we may be required or permitted by law or policy to report this information to authorities:

- Current or ongoing child or vulnerable adult abuse or neglect;
- Communicable, infectious or other diseases required to be reported under Minnesota's Reportable Disease Rule;
- Certain wounds or conditions required to be reported under other state or federal law; or
- Excessive use of alcohol or use of controlled substances for non-medical reasons during pregnancy.

What will be done with my data when this study is over?
We will use and may share data for future research. They may be shared with researchers/institutions outside of University of Minnesota. This could include for profit companies. We will not ask for your consent before using or sharing them. We will remove identifiers from your data and/or specimens, which means that nobody who works with them for future research will know who you are. Therefore, you will not receive any results or financial benefit from future research done on your data.

Whom do I contact if I have questions, concerns or feedback about my experience?
This research has been reviewed and approved by an IRB within the Human Research Protections Program (HRPP). To share feedback privately with the HRPP about your research experience, call the Research Participants' Advocate Line at 612-625-1650 (Toll Free: 1-888-224-8636) or go to z.umn.edu/participants. You are encouraged to contact the HRPP if:

- Your questions, concerns, or complaints are not being answered by the research team.

- You cannot reach the research team.
- You want to talk to someone besides the research team.
- You have questions about your rights as a research participant.
- You want to get information or provide input about this research.

Will I have a chance to provide feedback after the study is over?

The HRPP may ask you to complete a survey that asks about your experience as a research participant. You do not have to complete the survey if you do not want to. If you do choose to complete the survey, your responses will be anonymous.

If you are not asked to complete a survey, but you would like to share feedback, please contact the study team or the HRPP. See the "Investigator Contact Information" of this form for study team contact information and "Whom do I contact if I have questions, concerns or feedback about my experience?" of this form for HRPP contact information.

Will I be compensated for my participation?

If you agree to take part in this research study, you will be given a $25 Prepaid Debit Gift Card. Each father-daughter pair receives one gift card. Participants will receive their gift card in-person or mailed to an accurate mailing address.

Signature Block for Parent Participant:

Your signature documents your permission to take part in this research. You will be provided a copy of this signed document.

_______________________________________ _______________
Signature of Participant Date

____
Printed Name of Participant

_______________________________________ _______________
Signature of Person Obtaining Consent Date

____
Printed Name of Person Obtaining Consent

Signature Block for Parent Permission and Child Assent:

Your signature documents your permission for the named child to take part in this research.

_______________________________________ _______________
Signature of Child Date

____
Printed Name of Child

_______________________________________ _______________
Printed Name of Father Date

____
Signature of Father

Appendix F: Assent Form

University of Minnesota

Assent to Participate in Research

Title of Research Study: African American Fathers Supporting Daughters Physical Activity

Researcher: PhD, Daheia J. Barr-Anderson

Sponsor: University of Minnesota

What is research?

Doctors and researchers are committed to your care and safety. There are important differences between research and treatment plans:

- The goal of research is to learn new things in order to help groups of kids in the future. Researchers learn things by asking a question, making a plan, and testing it.

Why am I being asked to take part in this research study?

A research study is usually done to find a better way to treat people or to understand how things work. You are being asked to take part in this research study because you are an African American daughter between the ages of 10 and 12 years.

What should I know about being in a research study?

You do not have to be in this study if you do not want to do so. It is up to you if you want to participate and if you want to, talk to your parents about any questions or concerns you have about the study. You can choose not to take part now and change your mind later if you want. If you decide you do not want to be in this study, no one will be mad at you. You can ask all the questions you want before you decide.

Why is this research being done?

In this study, I want to find out more about the relationship between you and your father and if it relates to your participation and attitude towards sports/physical activities.

How long will the research last?

We expect that you will be directly in this research study for the duration it takes to complete one survey. The entire research study will last from August 2021 through May 2022 .

What happens if I say "Yes, I want to be in this research"?

If it is okay with you and you agree to join this study, you will be asked to:

- Complete either an electronic or paper survey.
- You will be asked questions about the relationship between you and your father, his support of your physical activity, how you feel about being active, and your current level of physical activity.
- You will complete the survey without your father present.
- Your portion of the survey will consist of 39 questions.
- All questions will be multiple choice and there are no wrong answers.

- You will be provided instruction to help clarify survey questions.

What happens to the information collected for the research?

The researchers will share your information, including research study records, to only people who have a need to review this information. For example, sometimes researchers need to share information with the University or other people that work in research to make sure the researchers are following the rules.

What else do I need to know?

If you agree to take part in this research study, you will receive a $25 prepaid debit gift card. Each participating father-daughter pair receives one gift card.

Who can I talk to?

For questions about research appointments, the research study, research results, or other concerns, call the study team at:

Researcher Name: Tony Harris Jr Researcher Affiliation: University of Minnesota Phone Number: 910-409-8654 Email Address: harr2926@umn.edu	Study Staff (if applicable): Phone Number: Email Address:

This research has been reviewed and approved by an Institutional Review Board (IRB), a group of people that look at the research before it starts. This group is part of the Human Research Protection Program (HRPP). To share concerns privately with the HRPP about your research experience, call the Research Participants' Advocate Line at 612-625-1650 (Toll Free: 1-888-224-8636) or go to z.umn.edu/participants. You are encouraged to contact the HRPP if:

- Your questions, concerns, or complaints are not being answered by the research team.
- You cannot reach the research team.
- You want to talk to someone besides the research team or your parents.
- You have questions about your rights as a research participant.
- You want to get information or provide feedback about this research.

Signature Block for Child Assent

____ ______________

Signature of child Date

____

Printed name of child

____ ______________

Printed name of person obtaining assent Date

____

Signature of person obtaining assent

Appendix G. IRB Approval Letter

UNIVERSITY OF MINNESOTA

Twin Cities Campus

Human Research Protection Program
Office of the Vice President for Research

Room 350-2
McNamara Alumni Center
200 Oak Street S.E.
Minneapolis, MN 55455

612-626-5654
irb@umn.edu
https://research.umn.edu/units/irb

APPROVAL OF NEW STUDY

July 28, 2021

Daheia Barr-Anderson

612-301-1309
barra027@umn.edu

Dear Daheia Barr-Anderson:

On 7/25/2021, the IRB reviewed the following submission:

Type of Review:	Initial Study
Title of Study:	Paternal social support of youth physical activity outcomes: Implications for the relationship quality between African American fathers and daughters
Investigator:	Daheia Barr-Anderson
IRB ID:	STUDY00013529
Documents Reviewed with this Submission:	• Harris_Survey Measures.pdf, Category: Other; • Harris_Recruitment Screening Questionnaire.pdf, Category: Recruitment Materials; • Daughter Instruction Video Script.pdf, Category: Other; • Study Recruitment Flyer_PDF.pdf, Category: Recruitment Materials; • Harris_HRP-583-Assent-FormV2.pdf, Category: Consent Form; • Harris_HRP-580 - SOCIAL PROTOCOL_V2.docx, Category: IRB Protocol; • Harris_HRP_582_Social_Behavioral_Consent_Form_FatherV2.pdf, Category: Consent Form; • Study Introduction Script.pdf, Category: Other;

Driven to Discover℠

The IRB determined that the criteria for approval have been met and that this study involves No greater than minimal risk

This study was approved under Expedited Category(ies):

- (7) Research on individual or group characteristics or behavior or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

The IRB also made the following determinations for this study:

- This research has been approved to include children (individuals under 18 years of age) under 21 CFR 50.51/45 CFR 46.404 because the IRB finds that no greater than minimal risk to children is presented and that adequate provisions are made for soliciting the assent of the children and the permission of their parents or guardians. Those provisions include using consent and assent forms to get consent/assent.

This study does not require continuing review. The revised Common Rule (2018 Rule) eliminated continuing review for most minimal risk research approved on or after January 21, 2019. The elimination of continuing review does not eliminate reporting requirements or submission of modifications for IRB review and approval. Information about 2018 Rule requirements and investigator responsibilities can be found in the Investigator Manual (HRP-103).

You must also submit a Modification in ETHOS for review and approval prior to making any changes to this study.

If consent forms or recruitment materials were approved, those are located under the Final column in the Documents tab in the ETHOS study workspace.

In conducting this study, you are required to follow the requirements listed in the Investigator Manual (HRP-103), which can be found by navigating to the HRPP Toolkit Library on the IRB website.

For grant certification purposes, you will need the approval and last day of approval dates listed above and the Assurance of Compliance number which is FWA00000312 (Fairview Health Systems Research FWA00000325, Gillette Children's Specialty Healthcare FWA00004003).

Sincerely,

Jeffery Perkey, CIP, MLS
Senior IRB Analyst

Appendix H: Interview Questions

1. **How did you first hear about this study?**
2. **What motivated you to participate in the study?**

   Reflect on the recruitment communications you received.
3. **What suggestions do you have for strategies that I could have used to recruit fathers like yourself?**

4. **How long after recruitment did you complete the study survey?**
5. **How did you and your daughter complete the survey?**
6. **Where did you complete the study survey?**
7. **Describe any challenges or barriers you faced while completing the survey.**
8. **What could have made this process easier for you and or your daughter?**

   Think back on your experience from recruitment to survey/study completion.
9. **What do you think prevents other Black fathers from participating in a study such as this?**
10. **What do you believe prevents them from following through with completing the study?**
11. **Of all the things we discussed, what do you believe is the most important to foster more engagement from Black fathers in research such as this?**