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A Kink in the Exercise Plan: How Hair Affects Exercise for Metro Atlanta African American Teens

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Abstract

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By Haley McCalla

Introduction: African American girls suffer from obesity at a higher prevalence than girls from other ethnicities. However, exercising is a well-established method of managing weight. With adolescence being a time of significant cognitive growth and increased desire to make self-guided decisions, African American girls will make choices about exercise that may affect their health in the future. Therefore, it is important to understand barriers that may prevent these girls from engaging in exercise.

Objective: The purpose of this thesis project is to investigate hair as a barrier to engaging in exercise for African American teenage girls (ages 13-18 years) living in the Metro Atlanta, Georgia area.

Methods: From January to March 2019, 24 qualitative interviews with African American girls were conducted. These participants were asked about their hair, exercise routines, and methods of overcoming hair as a barrier. The qualitative data was transcribed, coded, and analyzed using MAXQDA Pro Analytics. This data was stratified by "exercisers" and "non-exercisers" to identify differences between the behaviors of these two groups. Relevant quotes were then identified to emphasize themes within the data.

Results: Girls had ambivalent feeling about their hair, but hair was still deemed an important aspect of their identities. "Exercisers" occasionally perceived hair as a barrier, but these girls heavily relied on protective styles (e.g., braids, twists, buns, etc.) to maintain their hair during exercise. For "non-exercisers", hair was either a minor barrier or not a barrier at all; lack of motivation to exercise was the true barrier for this group.

Discussion: Hair is an important part of identity for African American girls. Consequently, those in public health and health education must be cognizant of this potential barrier to exercise. Encouraging low-intensity—but still beneficial—forms of exercise like yoga, Pilates, and weight-lifting can encourage girls who may be hesitant about exercising because of their hair. Additionally, increasing social support around exercise, encouraging protective styling, and promoting a "physical health over physical attractiveness" philosophy can encourage girls to exercise more frequently and overcome hair as a barrier.

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INTRODUCTION

Rationale

African American girls suffer from obesity at a higher prevalence than girls from other ethnicities. Data from 2015–2016 reflects this issue, indicating an obesity prevalence of 25.1% for African American girls (ages 2-19) compared to 13.5% for non-Hispanic White girls (Hales, Carroll, Fryar, & Ogden, 2017). This health problem is associated with potentially serious health consequences in the future. According to the World Health Organization, "childhood obesity is associated with a higher chance of premature death and disability in adulthood" (2019). In particular, research has shown a direct link between cardiovascular morbidity and mortality and obesity for African American women (Agyemang & Powell-Wiley, 2013). Unfortunately, the 2017 National Health and Nutrition Examination Survey indicated that childhood obesity rates continue to rise, suggesting that more African American girls will suffer from this condition in the near future (Robert Wood Johnson Foundation, 2019).

The Centers for Disease Control and Prevention highlights genetics, behavior, and community environment as core causes of childhood obesity (2019a). Of these three causes, behavior is the most personally controlled, and therefore, the most personally modifiable. Thus, examining obesity-preventing behaviors and barriers to these behaviors is crucial to halting this trend and reducing chronic disease morbidity and mortality.

For this thesis project, the researcher will focus particularly on obesity-preventing behaviors for adolescents. Adolescence is a period of significant cognitive growth that is associated with an increased desire to make "self-guided decisions in the face of risks, uncertainty, and varying proximal and distal outcomes" (Hartley & Somerville, 2015).

Decisions about managing a healthy weight are no exception to this, and these decisions have the potential to affect their health as they mature into adults.

Problem Statement

Obesity is a significant public health problem for Georgia. This state has the 18th highest obesity rate for children ages 10–17 and an adult obesity rate of 31.6% (Robert Wood Johnson Foundation, 2017). African Americans are particularly burdened by this health issue. At 35.9%, the obesity rate for African American Georgians is higher than that of the state's (America's Health Rankings, 2018).

Georgia, particularly the Metro Atlanta area, is unique in that it has a large—and increasing-- African American population (Atlanta Regional Commission, 2019). Given the concentration of African Americans in this area and the previously mentioned connection between childhood obesity and poor adult health outcomes, an opportunity exists to understand barriers to maintaining a healthy weight for teenage girls. The Health Belief Model, further explored in this thesis, demonstrates why addressing barriers matters: "messages will achieve optimal behavior change if they successfully target perceived barriers…" (Jones et al., 2014).

The problem statement is as follows*: there is a need to understand barriers to engaging in exercise among African American teenagers (aged 13–19 years) living in the Metro-Atlanta, Georgia area.* Exercise is a focus of this study since it is a well-recognized method of managing a healthy weight and preventing obesity.

Throughout decades, there have been several studies conducted to understand why African American teenage girls do not engage in exercise as often as their racial counterparts. However, less attention has been dedicated to the subject of hair as a potential barrier to exercise. Hair has been confirmed as a potential barrier for adult African American women,

but there remains a gap in information for teenage girls from this same ethnic group. Therefore, hair is also a focus of this thesis project. For African Americans, hair is not simply an appendage. As described by Ellis-Hervey, Doss, Davis, Nicks, & Araiza, hair is "laden with messages and has the power to dictate self-esteem and even the type of treatment received from others…Hair is often seen as an announcement to the world of how an individual identifies himself or herself" (2016).

Theoretical Framework

Grounded Theory

Sociologists Glaser and Strauss are considered the founders of grounded theory, a methodology that involves "purposive sampling, followed by concurrent data generation and/or collection and data analysis" (Chun Tie, Birks, & Francis, 2019). This framework is commonly used in qualitative research for topics that have not been well-studied, making it suitable for this thesis project on how hair may affect exercise for African American teenage girls (Creswell, 2006, pp.83–88).

Grounded theory relies on theory-based sampling which allows for a deeper understanding of a phenomenon in a variety of settings and circumstances (Robert Wood Johnson Foundation, 2008). Data is "constantly compared" with subsequent data until the researcher has gathered enough information to form a theory (i.e., theoretical saturation) (Glaser & Strauss, 1967, pp.101–109). Based on this framework, analyzing interviews from African American teenage girls will result in a data-driven theory about how hair may act as a barrier to exercise.

Health Belief Model

The Health Belief Model is an explanatory framework that suggests that people engage in health-protective behaviors after considering the severity of a health threat, their

perceived susceptibility to that health threat, benefits of taking health-protective behaviors, and barriers to taking health-protective behaviors (Hochbaum, 1958; Rosenstock, 1960, 1966). In addition, the concept of self-efficacy (belief that the person can successfully perform the health-protective behaviors) and cues to action (prompting factors that encourage health-protective behaviors) are incorporated within this model (Becker, 1974; Rosenstock, 1990).

For this thesis project, only two components of this model will be considered: perceived barriers and cues to action. These elements deserve focus because the project is exploring how hair may be a unique barrier to exercise and what encourages girls to overcome this potential barrier.

Purpose Statement & Research Question

The purpose of this thesis project is to investigate hair as a barrier to engaging in exercise for African American teenage girls (ages 13-18 years) living in the Metro Atlanta, Georgia area. The researcher adopts an exploratory, qualitative approach to limit assumptions and bias concerning this subject.

The research question is "*How does hair act as a barrier to exercise for African American teenage girls (ages 13-18 years) living in the Metro Atlanta, Georgia area?*" This core question will identify common reasons why hair may be perceived as a barrier to exercise, grooming methods used to overcome this barrier, and general perceptions about hair and exercise.

Significance Statement

This qualitative thesis project adds to the body of knowledge concerning barriers that prevent African American teenage girls from engaging in exercise, identifying a unique obstacle for public health professionals to consider when designing obesity interventions for this group.

Definitions

African American— an American of black African descent; also referred to a "black"

Coily—tightly spiraled hair; a hair feature common to those of African descent

Edges—refers to the hairs located on the hairline

Exercise—Physical activity that is intentionally done with the purpose to improve health and fitness

Kinky—hair strands with a zig-zag pattern, but no defined curl; a hair feature common to those of African descent

Natural—hair that is not chemically straightened by using relaxers or other straighteners

Teenage(r) — 13 to 18 years of age; typical age of adolescent girls in middle or high school

LITERATURE REVIEW

Obesity is a significant issue in the United States for African American girls, particularly, African Americans teenagers. An analysis of childhood obesity indicated that the prevalence of obesity in African American girls ages 12-19 was 42.5% (95% CI: 31.9–53.8) (Ogden et al., 2014). Unfortunately, data has shown decreases in this obesity rate for all other ethnic groups except for African American girls (Ogden et al., 2010, 2014). This trend continues into adulthood, with only 15.8% of the African American female population being of normal body mass index, which is the lowest of all racial and sex groups (Centers for Disease Control and Prevention, 2016b). The connection between obesity and numerous poor health effects has been well studied. Obesity is linked with type 2 diabetes, some cancers, cardiovascular disease, mental illness, and death (Centers for Disease Control and Prevention, 2019b). Physical activity via exercise is known to be an effective way to manage weight, and therefore, reduce the risk of these health complications, but African American girls may face challenges to engaging in exercise.

Data have shown that engagement in exercise significantly decreases for African American girls when they reach adolescence (Kimm, 2002; Pate, Dowda, O'Neill, & Ward, 2007). This reduction is activity is problematic because *The Physical Activity Guidelines for Americans* suggests that all teenagers exercise for a minimum of 60 minutes every day (Department of Health and Human Services, 2019). However, data from the 2017 Youth Risk Behavior Study showed that nearly a third of black girls were not physically active for this recommended amount of time—a significantly higher prevalence than that of white (16.7%) and Hispanic girls (20.0%) (Kann et al., 2018). This data alludes to more sedentary choices practiced by African American girls, with behaviors like television watching, computer use, and other forms of "screen time" being associated with reduced physical

activity (Tremblay et. al, 2011). However, "screen time" is not the only contributing factor for reduced physical activity. Lacking cues to action like peer and familial support for exercise has been correlated with less physical activity for teenagers of all races (Sallis, Taylor, Dowda, Freedson, & Pate, 2002; Trost et al., 2003). These reasons may be compounded by other findings that show that

- lack of time,
- disinterest in exercise,
- not wanting to physically exert themselves, and
- concern about physical appearance are perceived barriers that this population faces (Robbins, Pender, & Kazanis, 2003; Leslie et al., 1999; Taylor et al., 1999).

There have been several studies conducted that explore how to motivate African American girls who are disinterested in or unmotivated to exercise. Cues to action include increasing familial/peer support or encouraging dance-based exercises, for example (Mabry et al., 2003; Thompson, Berry, & Hu, 2012). However, not all barriers have been equally given attention. Particularly for physical appearance, the desire to maintain hairstyles was briefly mentioned in studies but was not thoroughly explored as a barrier to exercise. Therefore, this study intends to examine why hair may be a barrier to exercise, especially given the uniqueness of African hair.

Hair is a defining physical feature for those of African descent. The hair emerges from the scalp, elliptical in shape (Vernall, 1961). African hair tends to be tightly curled, with strands that often intertwine and knot together (Khumalo, Doe, Dawber, & Ferguson, 2000). The hair consists of more internal lipids than the hair of other races, leading to lower hydration properties, and therefore, drier hair (Cruz et. al, 2012; Franbourg, Hallegot, Baltenneck, Toutaina, & Leroy, 2003). Given these unique qualities, styling and maintaining

African hair can present issues. For example, the act of hair combing can lead to significant damage because the "insertion of a comb into a tress of highly curled African hair does not induce hair parallelism and thus creates no clear pathway" (Wolfram, 2003). Additionally, due to the fragility of African hair, excessive manipulation of the hair through chemical or styling methods can lead to breakage (Franbourg, Hallegot, Baltenneck, Toutaina, & Leroy, 2003). Being aware of these challenges, African Americans have designed strategies to manage their hair more efficiently. For example, Versey mentions that "hairstyles are often done with the intention of being preserved for days or weeks" (2014). This practice is commonly known as "protective styling".

In several studies involving African American women, hair has been described as a potential barrier to physical activity or exercise (Airhihenbuwa, Kumanyika, Agurs, & Lowe, 1995; Stolley et al., 2009; Railey, 2000). Very few adolescent studies mention hair as a potential barrier (Resnicow, 2002; Grieser et al., 2006). However, this topic has only been deeply explored through qualitative methods in only a few studies for women, and even less rich, qualitative data exists for adolescents. Despite this lack of data, a review of the literature identified the relevant studies. In these studies, hair was considered a barrier to varying degrees among the adolescents and women studied. Common themes found in these studies included avoiding sweat and water, chemically straightened ("relaxed") or flat-ironed hair being a barrier, hairstyles to manage hair during physical activity, and adjusting physical activity. Consequently, this literature review will be based on information from both population groups and common themes throughout.

Barriers

Avoidance of sweat or water. African American (AA) women and adolescents often expressed the need to avoid water or sweat interacting with their hair. There are several

reasons for this avoidance. Sweat and water can cause hair to revert to its naturally coiled state, undoing efforts to straighten or manipulate the hair into a style. Frequent or sweaty workouts may necessitate more frequent shampooing, potentially leaving the already fragile hair more vulnerable for damage and breakage (Taylor, 2002). If AA women do not shampoo after physical activity, sweat and bacteria can build on the scalp, causing irritation and odor (Goetz, Kaba & Good, 1988). If coiled hair is air dried, it may take hours for water to evaporate from the hair. If hair is blow-dried, heat damage is a potential consequence (Khumalo, Doe, Dawber, & Ferguson, 2000). Therefore, there are many undesirable consequences that can result from sweat and water interacting with hair.

In a study conducted with 123 women, "hair concerns led 35.9% of the surveyed women to avoid swimming/water activities and 29.1% to avoid aerobic/gym activities" (Hall et al., 2013). Similarly, in 2016, "'sweating out my hairstyle,' was stated by 7% of exercisers and 29% of non-exercisers" as a deterrent for engaging in physical activity (Huebschmann, Campbell, Brown, & Dunn). Additionally, for the adult AA women, studies have indicated that "sweaty, messy hair" was a downside of and barrier to physical activity for a significant proportion of individuals (Im et al., 2012; Gathers & Mahan, 2014).

AA adolescents expressed similar negative thoughts about sweat, water, and hair, including the fear that their chemically straightened hair would become "nappy", meaning that the hair would revert back to its naturally coiled and tangled state (Bowen & O'Brien-Richardson, 2017; Woolford, Woolford-Hunt, Sami, Blake, & Williams, 2016). These data suggest that avoiding sweat and water in the hair is a major reason why AA adolescents would and do avoid physical activity.

Chemically straightened ("relaxed") or flat-ironed hair as a barrier. As mentioned above, sweat and water can revert straightened AA hair back to its coiled state. Hair

reverting to coils may be problematic for some African American women. Kinky, non-straightened hair does not adhere to the European standard and preference for straight locks, and people of African descent have been taught this directly and indirectly since slavery (Bellinger, 2007). Patton mentions that media continues to perpetuate this standard because African American women who are "glorified for their beauty tend to be lighter-skinned women who have long, wavy hair" (2006). An African American woman who decides to wear her hair without altering it with heat or chemicals risks being discriminated against and negatively stereotyped (Rosette & Dumas, 2007).

In the selected studies about African American females, hair, and physical exercise, the issue of straightening hair appeared. Approximately 60% of adults in both the Hall et al. and Gather & Mahans studies wore their hair relaxed (2013; 2014). In the Hall study, "women with relaxed hair were more likely to avoid exercise because of their hair" (2013). For some African Americans, straight hair is viewed as more attractive. In the 2016 Woolford et al. study, straight hair was considered a more mature style when compared to natural hairstyles, and the adolescent girls "almost universally selected long, straight hairstyles as most attractive". Based on this information, AA girls may feel more inclined to style their hair in straighter styles to feel more attractive despite the fact that this same style may deter them from physical activity.

Adjusting physical activity level to avoid sweating. Data has indicated that AA women and girls tend to be overweight and obese when compared to other races (Ogden et al., 2010, 2014). However, physical activity has been shown as an effective method for managing weight (Centers for Disease Control and Prevention, 2016a). However, if hair acts as a barrier to physical activity, AA females may be less likely to engage in it. In a 2017 study, the more money and time that was spent on a participant's hair, the less physical activity the

adolescent engaged in (Bowen & O'Brien-Richardson). Furthermore, "46% agreed that they would exercise more if their hair was not affected" (Bowen & O'Brien-Richardson, 2017). In a separate study for AA women, to avoid ruining one's hairstyle, "walking at a slower pace… or doing low-intensity activity such as Pilates, yoga, or resistance exercise (e.g. weight lifting)" to avoid perspiration were methods used by participants (Hall et al., 2013). These data show that some AA females choose to not exercise as intensely or frequently because of their hair. These adjustments in physical activity—some of which are not conducive to health—demonstrate hair acting as a barrier to physical activity.

Coping Strategy

Using specific hairstyles to manage hair during physical activity. When AA women and girls do engage in physical activity, some find it necessary to manage their hair using a variety of styles. In fact, the Hall et al. study found that half of participants altered their hair for exercise, using "ponytails (31.1%), braids (19.4%), cornrows (10.7%), and natural (8.7%) styles" (2013). For Woolford's adolescent study, braids with added in hair and natural styles were "viewed as better for exercise" (2016). Adult studies indicated that these hairstyles were "freeing", and those labeled as "exercisers" tended to embrace natural styles rather than chemically straight styles to avoid restyling hair (Huebschmann et al., 2016). These data show that though hair can create challenges, they can be overcome through "protective styling."

Summary of Aims

Overall, there are very few studies conducted about African American teenage girls, hair, and physical activity. Only two relevant studies were identified in this literature review. Of these two studies, mixed methods were used. Though there are strengths in this data collection method, there remains a lack of rich, qualitative data from the individual perspective. This thesis project attempts to fill this gap by conducting one-on-one interviews

with African American teenage girls to determine why hair may be perceived as a barrier to exercise, grooming methods used to overcome this barrier, and general perceptions about hair and exercise. These results have the potential to inform obesity interventions targeted at African American teenage girls in the Metro Atlanta area. In addition, body mass indexes (BMIs) will be collected from participants to determine if a relationship exists between their BMIs and their responses. Participants will also be stratified by "exercisers" and "non-exercisers" to further identify patterns as to how hair may act as a barrier to exercise. In the next chapter, the methodology of this thesis project will be explored in further detail.

METHODOLOGY

Introduction

Qualitative data, collected through one-on-one interviews, were essential to this thesis project. These interviews were guided by a list of questions structured to understand perceptions about hair and exercise, determine if hair is perceived as a barrier to exercise, and, if so, the methods that are used to overcome this barrier. Participants were initially recruited from a Metro Atlanta non-profit with additional participants later being identified from this population by chain sampling. After the one-on-one, in-depth interviews were conducted, the resulting transcripts were analyzed, coded, and common themes were identified. Responses were then stratified by "exercisers" and "non-exercisers". BMI was calculated for each interviewee by using a digital scale, ruler, and the Center for Disease Control and Prevention's *BMI Percentile Calculator for Child and Teen*. Each respondent's BMI data was compared to their interview response to determine if there was a relationship between higher BMIs and hair being a barrier to exercise.

Population and Sampling

Participants for the study were initially recruited from a local non-profit in the Metro Atlanta area that teaches leadership and life skills to African American (AA) teen girls. Verbal consent was initially sought from the parents in order to allow the girls to participate in the study. Additionally, verbal assent was gathered from the girls. A time and place to conduct the study was established (typically the participant's home), and signed informed consent and assent forms were required before initiation. All participants were given a $5 cash incentive for participation in the study.

The chain sampling method was used to identify other AA teenagers who might be interested in participating; participants and their parents offered names and contact

information to reach other AA teenagers. Girls were permitted to participate in the study based on their willingness, age (13-18 years), and self-identification as both "African American" and "female". Chain sampling was continued until the study was able to sufficiently reach saturation. Saturation was reached after recruiting and interviewing 24 participants from January to March 2019. Each interview lasted approximately 44 minutes.

Consent

Informed consent forms were provided to participants and their parents. Assent forms were given to teenagers from 13-17 years of age. The forms contained an overview of the study, procedures, risks, benefits, confidentiality, and the researcher's contact information. Consent was obtained directly from teenagers who were 18-years-old. Parents consented for their daughters who were under age 18. Before the study began, participants and parents were allowed to ask clarifying questions. The researcher also reiterated that participants were free to withdraw from the study or refuse any procedures without fear of penalty, including that they would not forfeit their $5 cash incentive for ending the study early.

Instruments

The interview guide that was used includes introductory, transitional, probing, and closing questions. Questions are based on the topics derived from Bowen & O'Brien-Richardson's "Cultural hair practices, physical activity, and obesity among urban African-American girls", Woolford et al.'s "No sweat: African American adolescent girls' opinions of hairstyle choices and physical activity", and the researcher's intentions for the study.

- **Perceptions about exercise.** Participants were asked about how exercise makes them feel emotionally and physically. Girls were asked to share intentionally

participated and intentionally avoided exercise activities. These questions helped define them as an "exerciser" vs. a "non-exerciser".

- **Perceptions about hair:** Participants were asked to share how they feel about their own hair. Preferred and avoided hairstyles were sought, particularly ones related to exercise.
- **Hair as a barrier to exercise**. Participants were asked if or how hair prevents them from engaging in exercise. Hair-related difficulties encountered during and after an exercise session were sought. Girls were also asked to share a specific, personal anecdote about how hair has prevented them from exercising in the past.
- **Methods to overcome hair as a barrier to exercise**. Participants were asked about their strategies for maintaining their hairstyles before, during, and after exercise. Girls were asked to provide advice to other AA teenage girls to help them manage their hair and exercise routine. Advice for health professionals who promote exercise to AA teenage girls was also sought.

The interview guide underwent three revisions until questions sufficiently met the purpose of the study. The thesis chair and field advisor reviewed the guide for clarity and purpose.

For BMI, a calibrated, digital scale was used to determine the participant's weight, and a tape measure was used to determine height. The Centers for Disease Control and Prevention's "BMI Percentile Calculator for Child and Teen" was used to calculate BMI.

The study was submitted to Emory's Institutional Review Board (IRB), and approval was obtained before commencing the interviews. Copies of the interview guide and consent/assent forms can be found in the appendices.

Data Preparation and Analysis

All interviews were recorded using a recording application on a password-locked device. After reviewing the recordings, the interviews were transcribed verbatim using Microsoft Word and MAXQDA Pro Analytics. An initial codebook was developed in Microsoft Word using a deductive approach —common themes that were likely to appear within the data were based off literature review findings. After this initial codebook was developed, the codebook was tested on a single transcript from each of the "exerciser" and "non-exerciser" groups by using MAXQDA Pro Analytics' coding mechanisms. Inductive codes were then added based on this trial coding and subsequent transcripts. Excessive codes were discarded as needed to streamline the process and develop a final codebook (see appendices).

In total, 24 interviews were examined and coded. This data was stratified into two groups: 16 "exercisers" and 8 "non-exercisers". After all transcripts were coded, coding was reviewed and reconciled codes to ensure accuracy. Two MAXQDA visualization features aided in performing thematic analysis: Coded Matrix Browser and MAXMaps. The Coded Matrix Browser allowed the researcher to view multiple documents and their coding frequency patterns. MAXMaps was used to view the relationship between codes and subcodes. These visualizations aided in the analysis, allowing the following themes to be characterized: perception about hair; perception about exercise; hair as a barrier to exercise; and methods to overcome hair as barrier to exercise. Relevant quotes were identified to emphasize these themes.

Ethical Considerations

The researcher acquired Collaborative Institutional Training Initiative (CITI) certification before designing and conducting this study. This study was reviewed and

approved by Emory's IRB for human subjects research. Any participant who desired to withdraw from the study could do so at any time. Participants were free to refuse any procedures such as having their BMI measured or answering any questions. Participants also had the right to prevent their research information from being used in the final project. To avoid issues of coercion, participants were told that they could withdraw from the study or refuse any parts of the study without forfeiting their $5 cash incentive.

RESULTS

Introduction

Twenty-four African American teenage girls were interviewed in total. Of the girls interviewed, 16 were "exercisers", and 8 were "non-exercisers". This stratification was based on a girl's exercise frequency, her thoughts and feelings about exercise, and the researcher's interpretation of her affinity towards exercise. For example, a girl who only participated in exercise when it was mandatory (i.e., she was enrolled in physical education class) was considered a "non-exerciser". Girls who were involved in competitive or extracurricular physical activities were considered "exercisers"; they enjoyed exercise and engaged in it voluntarily and frequently. Demographically, the average age of an interviewee was 15 years old. Additionally, all of the girls interviewed either currently wore their natural hair texture or were transitioning out of relaxed hair to natural hair.

BMI data was also gathered from all but two interviewees. The majority of girls had BMIs within a healthy percentile (5th percentile up to the 85th percentile), despite stratification. When comparing BMIs between the "exercisers" and "non-exercisers", "exercisers" had a slightly lower BMI ($n=15$; $\bar{x}=22.74$) than the "non-exercisers" ($n=7$; $\bar{x}=24.73$). In the "exerciser" group, three girls were overweight, and one girl was obese as defined by their BMI percentiles. In the "non-exerciser" group, one girl was overweight, and two girls were obese according to their BMI percentiles.

Analysis of the qualitative data from the interviews led to the characterizations of the following major themes: perception about hair; perception about exercise; hair as a barrier to exercise; and methods to overcome hair as barrier to exercise.

Perception about Hair

Interviewees often expressed ambivalent attitudes about their hair. Hair was often characterized as dry, difficult to manage, and time-consuming, especially for girls with more coiled and kinky textures of hair. For example, one girl used the following analogy to describe her hair:

> *"It's like having a child [laughs]…You have to get it, you have to feed it, oil and water, moisturizer, you have to take care of it, you have to do it, you know. And you have to make sure it stays well like you don't want your hair breaking off."*

This analogy alludes to the feelings of obligation that African American girls have for their hair. Hair is an important aspect of identity for these girls and requires much nurturing to thrive.

Another girl's explanation about the difficulty of managing African American hair echoed many perspectives:

> *"It takes so much time and if you don't, um, detangle it, like it's so nappy and so tangled, and it can get so dry, so easily."*

The tightly coiled and often dry nature of African American hair makes it especially difficult to manage, leading to frustration. However, most girls stated that they liked their hair because of its versatility, and many expressed a love of their own curl pattern:

> *"Like I can do things, I can go from one end of the spectrum to the other and it's not something like other races can just mimic, it's just something that we have unique to us."*
>
> *"My hair is very, very curly. I like the texture of my hair, I like my curl pattern."*

All of the above quotes characterize the ambivalent perspective that nearly all girls had about their hair. Though the uniqueness of African American hair lends itself to feelings

of pride, it also comes with a unique set of challenges that need to be overcome to ensure the health and attractiveness of it.

The girls' peers also influenced the girls' perceptions about their hair. All of the girls mentioned the importance of maintaining styled hair. In fact, many of the girls described negative comments and looks from fellow students who saw their hair after exercise—a situation in which hair may be more voluminous or kinkier than usual. One girl mentioned a negative interaction with a classmate who typically saw her after exercise. This classmate commented on her hair after it was newly flat-ironed:

> *"Um, I remember a boy telling me, I think my freshman year. 'You should wear this more. Your other hair. Um, it's not as like attractive.' Not really nice to say. Then again, boys are ignorant so...Yeah. So, I don't really care what he said. It just hurt. But then I did care. But yeah, I don't like that comment."*

As mentioned in the introduction, hair has the power to illicit certain types of treatment from others. In this case, straightened hair was deemed more attractive than the girl's natural curl pattern—a pattern that is most prominent after exercise. In his eyes, straight hair was worthy of complimenting, but maintaining straight hair as an "exerciser" is unreasonable and undesired for this girl.

However, negative social reactions were not ubiquitous; others indicated that their peers were understanding of or non-reactive to hair changes that occur after exercise:

> *"I have friends who hair turn out like that too so they know how it is. And then some people they just like, I don't even know. I don't really hear them say anything but [laughs]. My school is mostly black so I think that they all have the same problem [laughs]."*

In this scenario, and as described by other girls, the social environment is less hostile because other African Americans understand how hair changes after exercise.

Perceptions about Exercise

Both the "exerciser" and "non-exerciser" girls described exercise as a way to improve health, increase physical attractiveness, and bond with friends and family. For "exercisers", enjoyment was frequently expressed as a reason for engaging in exercise. Sources of enjoyment ranged from feeling accomplished to enjoying the outdoors to building deeper relationships with team members and family.

Girls who frequently exercised were often engaged in a competitive sport like cheerleading, track, or basketball. Girls who rarely exercised mostly engaged in light activity like walking or bike riding. However, running and upper body exercises like push-ups were often described as strongly disliked forms of exercise by all girls, despite their affinity—or lack thereof—for exercise. The "exercisers" even associated these types of exercises with feelings of weakness, pain, exhaustion, and sweatiness:

> *"Oh, I, obviously the arms…It's like I wanna make them better but it's like, I mean, I don't feel like feeling that pain…And when I do have sore arms it's even worse than like having sore legs to me."*
>
> *"Well the type of exercise I avoid is running a lot. Because I start to feel like, I just don't like the process of running. They're always telling me I should run track, but I just don't like running long distances. Like for PE, I kind of have to do it because you know it's a grade, but running long distances just makes me feel tired. It doesn't make me feel good. So I usually avoid those."*

Though these girls exercised frequently, all exercise was not viewed as equal. These "exercisers" preferred their sports or leg-focused exercises to upper bodywork or running for endurance.

For girls who did not exercise, they often associated all exercise with pain and lacked the motivation to exert themselves past the discomfort:

"Normally exercise, it hurts for me. So anything that's less effort, I'm fine."

"I don't like running, I can walk but I don't like running cause I'm like when did running go from being a survival skill to being fun? And plus I get the... what do they call it? the runners' itch really, really bad, where your things expand and collapse on themselves and your legs get like the itchy, burning sensation; and I can't stand it, and like my mom's like 'well if you work through it, it will eventually start going away the more you exercise.' Well I'm like, 'that's going to take too long, I'm already tired of it', and I've only ran like twice now."

These girls expressed a clear understanding of the importance of exercise for maintaining health during the interviews. However, being unmotivated and preferring comfort deterred them from regularly engaging in physical activity.

Hair as a Barrier to Exercise

Hair changes

As mentioned previously, all interviewees had either natural hair or were transitioning from relaxed to natural hair. Though hair reverting to its natural state is more clearly observed when an African American girl has straightened hair, most of the interviewees described the frustrations that sweat caused to both their curly/kinky hair and straightened hair. The following quote by an interviewee summarizes these undesirable effects:

"Sweats out—if it's flat-ironed the root is automatically puffed up, if it is in a slick-back, my edges come all the way up. It may not be full out of control, but it's messed up. If I try to keep a scarf or something on while I'm exercising, the scarf makes it hot under there, sweat builds up there, it's stuck and seeps into there, it just doesn't work."

This quote illustrates how hair changes and alludes to how hair may be perceived as a barrier to exercise. If a girl's method of coping (in this case, using a scarf) does not work very well, she may be deterred from exercising in the first place.

The concept of hair being a barrier to exercise was furthered explored during the interviews. Nearly all girls interviewed could recall at least one moment when hair had prevented them from exercising. These stories would often involve newly styled hair that needed to be maintained. Given these circumstances, the typical reaction would be that the girl would refuse to exercise or limit her exercise to maintain the hairstyle. For girls who frequently exercised, limiting effort expended during exercise was more commonly mentioned. This quote from an "exerciser" shows how she preserved her flat-ironed hair in this manner:

> *"I would get my hair straight and like my coaches are black so they understood like the struggle…I wouldn't be running as hard. I'd be kind of like lightly jogging up the court... Just, I don't know. Or sometimes I would just not do it at all…Just go into the locker room and sit… Cause I didn't want it to look bad for the rest of the day and then waste my money and time."*

In this circumstance, strenuous exercising would mean that both time and money would be wasted investments. Her hair would revert due to sweat, and it would no longer look attractive. By curtailing her physical efforts or opting out of exercise all together, this girl was able to protect these investments.

Another "exerciser" mentioned her dilemma of having to maintain her hair for a performance and grade but still having to participate in exercise for another class:

> *"…I had my dance show. We had to have our hair a certain way, and we have like practice days, so we run the show. So, your hair has to be how it's gonna look for the show because that's a part of your grade, and so at the time I had um, personal fitness because I had health and I didn't, I was*

not about to walk into the rehearsal looking a hot mess so I've walked to get exercise because I wasn't about to, I wasn't, I couldn't afford having a—sweating out my hair cause we had to slick it back into bun."

Hair is seen as an investment that needs to be protected in this scenario as well. This girl's appearance mattered so she adjusted her intensity of exercise to meet her needs for beauty and grades.

Hair can also be a barrier to exercise in less obvious ways like maintaining beauty. Another girl mentioned how her natural hair affected her confidence as a cheerleader:

"I mean sometimes because you know, there are a lot of Caucasian people on my, uh, cheer team…people with straight hair and their hair… I just liked their hair, like how it looks in a ponytail. Um, so sometimes I wished that my hair, I can just like throw it up in a ponytail and have like a long ponytail with a bow. But of course, I can't do that because my hair is curly and I feel like that's like a typical cheerleader look. So sometimes I kind of wish that I could do that. So sometimes I don't put my, like, usually we have a bow to wear with practice and stuff and competitions and sometimes they don't put the bow in my hair because my hair just can't keep a bow in my hair because of my hair type and the way I'm wearing my hair that day. Like sometimes I'll wear these [points to hair in buns] to practice. I can't just like put two giant bows in each bun…So sometimes I just, sometimes my hair just affects that. Also, I feel like when I don't wear my bow, I feel less confident in my exercise because I just like the way it looks. I feel like it makes me feel like a better cheerleader when I'm wearing my bow. And it makes me feel like, I have more experience and stuff. So that's one way that my hair just keeps, keeps me from exercising, I guess, to my fullest potential."

For this girl, natural hair presents a unique challenge. She feels unable to portray herself as a "typical cheerleader" because her curly hair keeps her from wearing an important

piece of the uniform: the bow. She alludes to feeling like an outsider within her own team, which reduces her motivation to give her best performance and exercise to her maximum ability.

However, these occurrences were not very common for "non-exercisers. For this group, hair was—at most—perceived as a minor barrier to exercise. These girls insisted that their most significant barriers were lack of motivation and avoiding sweat and pain. Given how these findings relate to data found in the literature review, they will be explored further in the "Discussion" chapter.

Methods to Overcome Hair as a Barrier to Exercise

Universally, interviewees suggested protective styling through braids, twists, buns, and ponytails to overcome hair as a barrier to exercise. The girls explained that these hairstyles limit how sweat can change their hair. The styles also required little or no time to redo after exercise. In addition, some girls mentioned using hair scarves to manage sweat and control hair volume.

When asked about exercises that would not cause sweat to significantly affect their hair, girls frequently suggested low intensity workouts like yoga, walking, weight-lifting, and squatting. These exercises were described as low-intensity and not likely to induce heavy sweating.

Interviewees gave further advice on how fellow African American girls can overcome hair as a barrier. Despite their classification as an "exerciser" or "non-exerciser", many girls encouraged a "just do it" attitude; interviewees insisted that other girls disregard their superficial concerns about hair in order to reap the health benefits of exercise:

"So, I'll tell her to deal with it. And go do some exercise. Exercising is more important."

Advice also came in the form of perspective changes. Many girls spoke of self-acceptance and love for their hair despite the frustrations that it could bring. The quote below from an interviewee alludes to the importance of having high self-esteem and changing perspectives so that the sweatiness and volume of hair might be seen in a positive light rather than as a barrier:

> *"Don't let your hair be an obstacle because your hair is completely uniquely yours, which means that it's kind of, it's kind of a power for you to wield, you know, it's something, it's a crown that sits on top of your head, so it shouldn't really stop you from doing anything that you want to do…. I'm also very fond of my hair when I'm working out because I feel like when I feel good and fit after working out, my hair is part of that, so my hair, it's still sitting on top of my head like a crown. It still defies gravity, you know, all that stuff. It's still, like we said before, like a crown on your head and actually I… I kind of feel like the sweat accentuates the kind of darkness of the hair."*

The quote above was from an "exerciser" who decided to see the positive in hair changes rather than the frustrations. This perspective change can encourage girls to embrace what may be seen as a negative—puffy, voluminous, more kinky/curly hair—and allow them to overcome hair as a barrier to exercise.

Girls also desired support from the adults in their lives who teach physical education and encourage exercise. Interviewees mentioned the importance of PE teachers, coaches, and other health education staff being cognizant of the importance of maintaining hair for African American girls:

> *"Like some people spend a lot of money on getting their hair done so you should, probably like if you've noticed like a lot of African American girls in your classes aren't exercising because of their hair, you should maybe try to find certain things that they can do during class that still have them exercising, but have it so like that they are not ruining hair, so they're actually like more willing to*

participate in the class. Because like...if they need to know anything, cause unless if the teacher themselves isn't an African American female and doesn't know about how much money some girls spend on their hair, they might just think, 'oh, it's just their hair they'll get over it if it sweats out.' But like I know people who spend hundred, two hundred dollars getting their hair done and they don't want to ruin that for a single class period."

Interviewees sought understanding from adults when hair was a barrier to exercise. They wanted their concerns about hair management to be validated, and at times, given some leniency when hair necessitated skipping or limiting exercise for the day. If leniency could not be offered, these adults could propose alternative exercises that would not induce sweat. Girls also mentioned that the adults could encourage their students to wear their hair in protective styles.

Summary

The interviews revealed that girls had strong, ambivalent feelings about both exercise and their hair. Hair was viewed as a source of pride and stress for most interviewees. Exercise was universally regarded as important to maintain physical health but the scenarios in which they engaged in it differed for girls who were identified as "exercisers" versus "non-exercisers". Hair did act as a barrier for the girls who were "exercisers", at times, limiting or eliminating the effort exerted during moments when hairstyles needed to be maintained. However, during typical scenarios, girls who exercised coped with sweat by using protective styles like braids, buns, ponytails, twists, and scarf-covered hair.

In these interviews, girls also suggested ways that adults can encourage exercise and still be sensitive to the desire that African American girls have to maintain their hair. Girls stated that coaches, physical education teachers, and health education staff can encourage protective styling, offer low-intensity exercises, and/or provide occasional leniency.

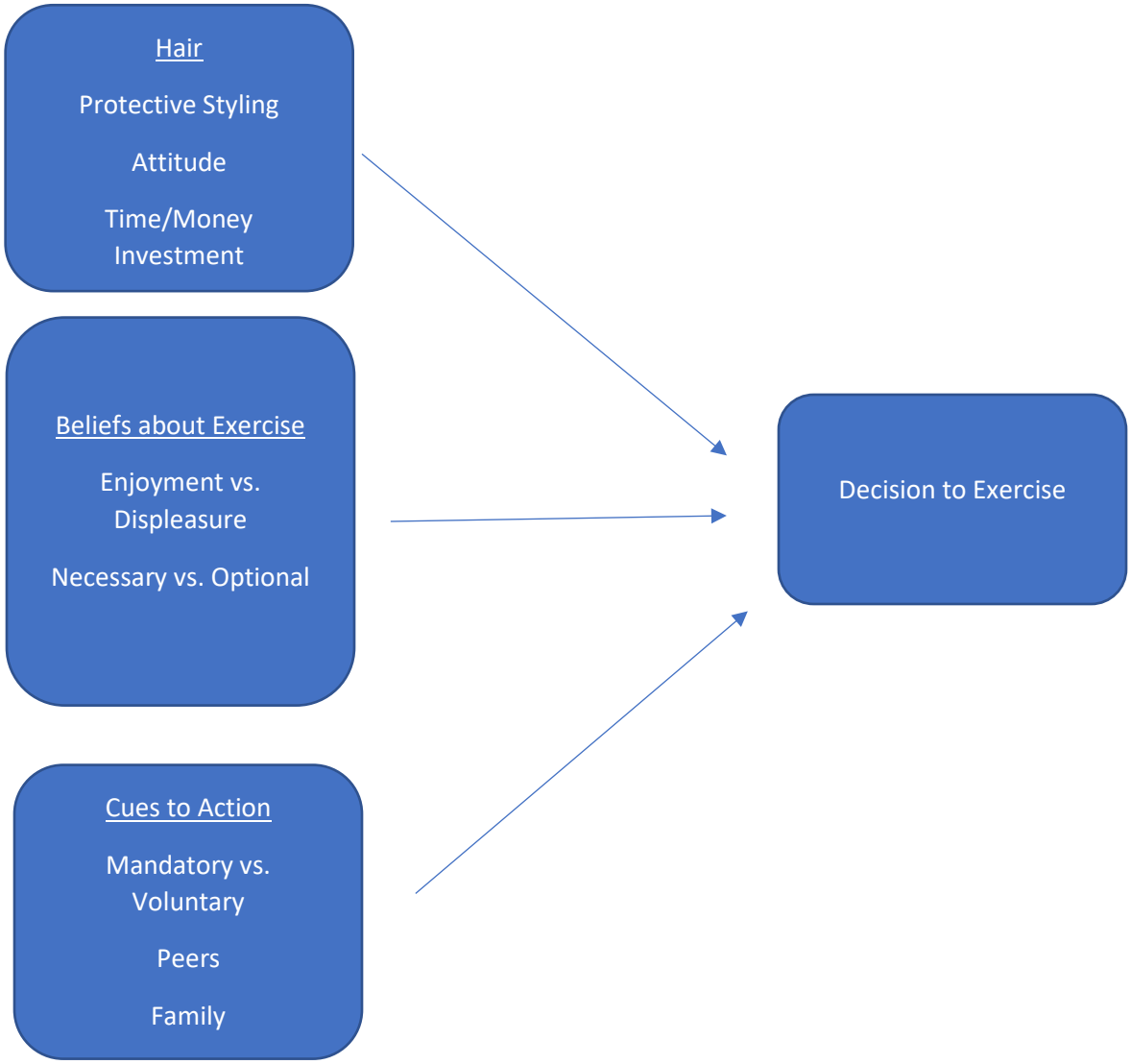
Additionally, interviewees encouraged fellow African American girls to have resilient self-esteem and an exercise-prioritizing attitude to prevent hair from being a barrier.

Hair was not seen as a significant barrier for girls who rarely engaged in exercise. These girls rarely exercised because of lack of motivation and avoiding discomfort and pain. These findings align with those found in the literature review and will be discussed in the next chapter.

DISCUSSION

Introduction

The data gathered from the qualitative interviews highlight the multifaceted nature of an African American girl's decision to exercise. This decision is influenced by internal and external factors, as shown by the following model of association. This model of association reflects two elements of the Health Belief Model: perceived barriers (hair and exercise beliefs) and cues to action.



Summary of Study

The results of this study align with findings from earlier quantitative and mixed methods studies. The findings of these previous studies indicate that hair *can* be a barrier to exercise for African American girls. However, these studies did not gather in-depth qualitative data about *how* or *why* hair may act as a barrier to exercise. This study aimed to fill that gap by conducting one-on-one, exploratory interviews. The findings are summarized below.

Discussion of Key Results

Hair May Act as a Barrier to Exercise for Motivated African American Teenage Girls

Participants in the study universally agreed on how important exercise is to maintain physical health despite their classification as an "exerciser" or "non-exerciser". Therefore, sedentary behavior cannot be attribute to knowledge gaps about the benefits of exercising but rather to a girl consciously making the decision to avoid exercising. This study showed that girls who do not exercise often choose not to because they are unmotivated to do so, and exercise is deemed painful and uncomfortable. These results align with findings from other studies of this population group (Robbins, Pender, & Kazanis, 2003; Leslie et al., 1999; Taylor et al., 1999). For "non-exercisers" in this study, hair was characterized as a minor barrier or not a barrier at all; lack of motivation to exercise was the true perceived barrier for them. If they did exercise, their cue to action was requirement (i.e., physical education class in school).

However, "exercisers" had a different experience of exercise. These interviewees spoke of multiple cues to action that compel them to exercise regularly such as social support (family and peers), physical education requirements, physical attractiveness, and enjoyment. In particular, social support majorly influenced girls' exercise habits; girls valued

bonding with peers and family members during exercise activities. This finding aligns with previous studies that suggest increasing peer/familial support to encourage girls to exercise more frequently (Mabry et al., 2003; Thompson, Berry, & Hu, 2012). Additionally, these girls were often involved in sports such as cheerleading, track, or basketball, all of which inspire positive social interaction through cooperation and bonding.

Acknowledging that the decision to exercise is not as simple as knowing the benefits of it segues into how hair may act as a barrier for African American girls. In this study, both "exerciser" and "non-exerciser" girls expressed ambivalent attitudes about their hair. Hair was seen as an important physical feature that can be manipulated to enhance their beauty and communicate information about their personalities. Simultaneously, however, hair was seen as a source of frustration and the management of it as a time-consuming chore. Given the fragile yet versatile nature of African American hair, as described in the literature review, this ambivalence was unsurprising.

Understanding the importance of hair for African American teenage girls alludes to the dilemma that this population may face when deciding to engage in exercise. As mentioned earlier, hair may be a minor barrier or not one at all for a girl who is not motivated to exercise regularly. However, for "exercisers", hair is, at times, a barrier to exercise. Nearly all of the "exercisers" could recall moments where their hair had limited or prevented them from engaging in exercise.

The issues lies in the fact that beneficial exercise—exercise that promotes physical health—is strenuous and often causes sweating. The interviewees mentioned that sweat would cause their hair to become more voluminous and kinky, a result of hair returning its most natural state after being styled. The literature spoke of this reversion in terms of chemically straightened hair, with girls and women fearful that exercise would cause their

hair to become "nappy" (Bowen & O'Brien-Richardson, 2017; Hall et al., 2013; Woolford, Woolford-Hunt, Sami, Blake, & Williams, 2016). However, in this thesis project, every girl had some degree of natural hair, and if she was not yet completely natural, she was growing out her hair to become so. The girls from this study generally embraced their natural curl pattern; there was no apparent preference for straight hair in the interviewees for this study, which differs from previous literature.

Despite the interviewees preference for natural hair, sweat was still perceived as an undesirable result of exercising because it negates the time and money spent to groom it. This finding reflects those of the Huebschmann, Campbell, Brown & Dunn study where African American women cited "sweating out my hairstyle" as a deterrent for exercising (2016). Therefore, to protect their investments, "exercisers" often described how they would limit their effort or refuse to exercise. This behavior echoes data from the Bowen & O'Brien-Richardson adolescent study, which showed that the more money and time that was spent on a participant's hair, the less physical activity the adolescent engaged in (2017). As a result, all girls, despite exercise stratification, suggested exercises that would not cause sweat to significantly affect their hair. Similarly to the Hall et al. study, walking, yoga, and weight-lifting were mentioned as low-intensity alternatives that would not induce much sweat (2013).

As mentioned above, "exercisers" did have moments when hair was a barrier to exercise. However, these teenage girls strived to make these occurrences rare. They found ways to manage their hair and still regularly exercise. The primary coping method was protective styling, which is the use of braids, twists, buns, and ponytails. These styles provided the benefit of having attractive hair, while limiting the effects of sweat during

exercise. Protective styling as a coping method aligns with findings from both the 2013 Hall et al. study and the 2016 Woolford study.

Though not expressed as an attractive protective hairstyling option, many girls also used scarves to absorb sweat and control volume. Universally, the "exercisers" also agreed that avoiding straight hair was ideal; hair reverting after exercise is inevitable with straightened hair because of sweat. Girls also suggested other coping methods like attitude changes about hair and exercise and encouraging "non-exercisers" to adopt a philosophy that prioritizes physical health over physical attractiveness.

Finally, both "exercisers" and "non-exercisers" expressed the importance of coaches, physical education teachers, and other health education staff understanding that hair may be a barrier for African American girls. They wanted these adults to be aware of the time, energy, and financial costs of maintaining hair, especially if these adults were not African American themselves. Interviewees recognized that these adults have the duty to encourage exercise but insisted that occasional leniency should be given if a girl needs to preserve her hairstyle. Furthermore, some girls thought that these adults should be able to offer protective styling suggestions if they find their students unable to exercise because of their hair. These findings were not identified in related studies. Therefore, this information fills a gap in the data and emphasizes the importance of adults in facilitating exercise.

Implications & Recommendations

Public health would benefit from a better understanding of hair as a potential barrier for African American teenage girls. This population is at risk for obesity and obesity-related diseases in the future if they fail to find healthy ways to manage their weight. By considering hair as a possible barrier, interventions can be tailored to suit these girls, increasing the likelihood that they will engage in exercise more frequently.

This study has several recommendations. Health promotion programs should incorporate exercises that limit sweating. Strength building exercises like yoga, Pilates, and weight-lifting would still encourage physical health but will not result in as much sweat as running or team sports. Incorporating these forms of exercise will limit the anxieties that teenage girls may have about ruining their hair. Another recommendation is that physical education teachers, coaches, and other health education staff increase their understanding of African American culture and the importance of hair within this culture. These adults should acknowledging the significance of hair's appearance for African American girls and the social consequences that these girls may face for unattractive hair. For example, "self-consciousness about appearance", especially in the presence of boys, has been found to be a deterrent for engaging in exercise for African American girls (Leslie et al., 1999; Taylor et al., 1999). Acknowledgement and understanding will allow these health professionals to incorporate more empathy in their practices. In addition, these adults can encourage attitudes and protective hairstyles that are conducive to the girls participating in exercise activities. Finally, encouraging social support of exercise from peers and family would compel more girls to exercise based on the findings from this research and the literature.

In conclusion, it is important to note that not all African American girls in this study perceived hair as a barrier to exercise. Therefore, hair should be considered as a potential barrier while also accounting for other deterrents for exercise like lack of motivation, discomfort, and time-constraints.

Limitations

Inherent limitations exist in qualitative studies, including this one. Firstly, generalizability is limited because only 24 interviews were conducted, and these interviews were gathered from a particular racial and geographic community. However, the goal of this

research was to find detail-rich cases to examine how hair may be a barrier to exercise, enough to reach saturation but not indicate statistical significance.

Secondly, biases may be a limitation. This exploratory research heavily relied on self-reported data. Responses about exercise frequency and intensity and hair management methods cannot be independently verified, for example. Therefore, biases such as exaggeration and selective memory may be present. In addition, the researcher is an African American female. Due to the face-to-face interview setting, respondents may have been affected by social desirability bias. However, the researcher has attempted to mitigate this bias as much as possible by providing unconditional, positive feedback to encourage genuine responses. Finally, parents were present when the interviews were conducted; therefore, there may be social desirability bias due to parental presence. The researcher attempted to mitigate this by asking the parents to leave the room when it was socially appropriate and reasonable to do so.

Thirdly, separate researchers did not code the data multiple times. "Double coding" is the standard for qualitative research. However, the researcher reviewed and reconciled previous coding as needed to account for initial inaccuracies.

Fourthly, all of the interviewees had hair that was not chemically altered by the use of relaxers or other straighteners. Therefore, the perspectives of these individuals are missing from this study. However, the lack of this data reflects a cultural shift towards natural hair that has been occurring since the early 2010s: "sales of relaxers in the Black haircare market have plummeted 36.6 percent between 2012-17… nearly four in five (79 percent) consumers have worn a natural hairstyle in the past year (Mintel, 2017).

Conclusion

This study investigated how hair may act as a barrier to exercise for African American teenage girls, ages 13-18, in Metro-Atlanta, GA. The data gathered from one-on-one, qualitative interviews indicated that hair can and does act as a barrier to exercise for girls who already exercise regularly. For girls who seldom engage in exercise, hair is rarely a barrier for exercise. These girls described themselves as unmotivated to exercise due to pain, discomfort, or disinterest.

Prior research about this topic was limited, with only two mixed methods studies exploring this subject matter. Therefore, this research sought to fill a gap in the literature by providing in-depth, qualitative data. Future health interventions can benefit from this research by incorporating exercises that limit sweat and encouraging health professionals to approach these girls with a sense of cultural humility and empathy. Ultimately, the public health goal is to encourage this population to adopt exercising as a lifestyle choice so that obesity-related morbidity and mortality can be reduced in the future.

> *"Your hair is a part of your body, and if you can exercise and take care of your hair at the same time, then really, you've, you've mastered it. So now that I'm able to exercise and take care of my hair, yeah, I feel like I've properly started the journey to a healthy body by means of exercising."*
>
> — Participant

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APPENDICES

- **APPENDIX A-** Informed Consent Form for Girls 18 Years Old
- **APPENDIX B-** Informed Consent Form for Parents
- **APPENDIX C-** Assent Form For Girls 13-17 Years Old
- **APPENDIX D-** Interview Guide
- **APPENDIX E**- Code Book for Hair and Exercise Interviews

Emory University

Consent to be a Research Subject

Title: A Kink in the Exercise Plan: How Hair Affects Exercise for Metro-Atlanta African American Teens

Principal Investigator: Haley McCalla, B.S. in Health Promotion & Behavior, EMPH Department

Introduction

You are being asked to be in a research study. This form is designed to tell you everything you need to think about before you decide to consent (agree) to be in the study or not to be in the study. **It is entirely your choice. If you decide to take part, you can change your mind later on and withdraw from the research study. You can skip any questions that you do not wish to answer.**

Before making your decision:

- Please carefully read this form or have it read to you.
- Please ask questions about anything that is not clear.

You can take a copy of this consent form to keep. Feel free to take your time thinking about whether you would like to participate. By signing this form, you will not give up any legal rights.

Study Overview

The purpose of this study is to explore how hair may be barrier to exercise for African American teenagers living in the metro-Atlanta area. This study seeks to identify common reasons why hair may be perceived as a barrier to exercise, grooming methods used to overcome this barrier, and general perceptions about hair and exercise.

Procedures

You will be asked to stand on a scale so that your weight is measured. You will be asked to stand against a ruler to measure your height. These measurements will be used to calculate your body mass index (BMI). You will then be asked open-ended questions about your exercise behaviors, how you maintain your hair, and your perceptions about your hair and exercise routine by the researcher during a one-on-one interview. The total time commitment is one hour.

Risks and Discomforts

Certain questions and/or having your weight/height measured may cause you to feel mild feelings of discomfort or embarrassment during this study. Additionally, a breach of confidentiality is a potential risk of participation. These risks are minimal.

Benefits

This study is not designed to benefit you directly. This study is designed to learn more about how hair affects exercising behaviors. The study results may be used to help others in the future.

Compensation

You will receive $5 for participating in this study. This compensation does not depend on you completing this study.

Confidentiality

Certain offices and people other than the researchers may look at study records. Government agencies and Emory employees overseeing proper study conduct may look at your study records. These offices include the Office for Human Research Protections, the Emory Institutional Review Board, and the Emory Office of Research Compliance. Emory will keep any research records we create private to the extent we are required to do so by law. A study number rather than your name will be used on study records wherever possible. Your name and other facts that might point to you will not appear when we present this study or publish its results.

Voluntary Participation and Withdrawal from the Study

You have the right to leave a study at any time without penalty. You may refuse to do any procedures you do not feel comfortable with, or answer any questions that you do not wish to answer. If you choose to withdraw from the study, you may request that your research information not be used.

Contact Information

Contact Haley McCalla at (678) 654-8125:

- if you have any questions about this study or your part in it, or
- if you have questions, concerns or complaints about the research

Contact the Emory Institutional Review Board at 404-712-0720 or 877-503-9797 or irb@emory.edu:

- if you have questions about your rights as a research participant.
- if you have questions, concerns or complaints about the research.
- You may also let the IRB know about your experience as a research participant through our Research Participant Survey at http://www.surveymonkey.com/s/6ZDMW75.

Consent

Please print your name and sign below if you agree to be in this study. By signing this consent form, you will not give up any of your legal rights. We will give you a copy of the signed consent, to keep.

_____

Name of Subject

_____ _____

Signature of Subject Date Time

_____ _____

Signature of Person Conducting Informed Consent Discussion Date Time

_____ _____

Signature of Legally Authorized Representative Date Time

_____

Authority of Legally Authorized Representative or Relationship to Subject

Emory University

Consent for Child to be a Research Subject

Title: A Kink in the Exercise Plan: How Hair Affects Exercise for Metro-Atlanta African American Teens

Principal Investigator: Haley McCalla, B.S. in Health Promotion & Behavior, EMPH Department

Introduction

Your child is being asked to be in a research study. This form is designed to tell you everything you need to think about before you decide to consent (agree) for your child to be in the study or not to be in the study. **It is your choice. If you decide to take part, you can change your mind later on and withdraw your child from the research study. Your child can skip any questions that she does not wish to answer.**

Before making your decision:

- Please carefully read this form or have it read to you.
- Please ask questions about anything that is not clear.

You can take a copy of this consent form to keep. Feel free to take your time thinking about whether you would like your child to participate. By signing this form, you will not give up any legal rights.

Study Overview

The purpose of this study is to explore how hair may be barrier to exercise for African American teenagers living in the metro-Atlanta area. This study seeks to identify common reasons why hair may be perceived as a barrier to exercise, grooming methods used to overcome this barrier, and general perceptions about hair and exercise.

Procedures

Your child will be asked to stand on a scale so that her weight is measured. She will be asked to stand against a ruler to measure her height. These measurements will be used to calculate her body mass index (BMI). She will then be asked open-ended questions about her exercise behaviors, how she maintains her hair, and her perceptions about her hair and exercise routine by the researcher during a one-on-one interview. The total time commitment is one hour.

Risks and Discomforts

Certain questions and/or having her weight/height measured may cause her to feel mild feelings of discomfort or embarrassment during this study. Additionally, a breach of confidentiality is a potential risk of participation. These risks are minimal.

Benefits

This study is not designed to benefit you or your child directly. This study is designed to learn more about how hair affects exercising behaviors. The study results may be used to help others in the future.

Compensation

Your child will receive $5 for participating in this study. This compensation does not depend on her completing this study.

Confidentiality

Certain offices and people other than the researchers may look at study records. Government agencies and Emory employees overseeing proper study conduct may look at her study records. These offices include the Office for Human Research Protections, the Emory Institutional Review Board, and the Emory Office of Research Compliance. Emory will keep any research records we create private to the extent we are required to do so by law. A study number rather than her name will be used on study records wherever possible. Her name and other facts that might point to her will not appear when we present this study or publish its results.

Voluntary Participation and Withdrawal from the Study

Your child has the right to leave a study at any time without penalty. She may refuse to do any procedures you or her do not feel comfortable with, or answer any questions that you or her do not wish to answer. If she chooses to withdraw from the study, you may request that her research information not be used.

Contact Information

Contact Haley McCalla at (678) 654-8125:

- if you have any questions about this study or your child's part in it, or
- if you have questions, concerns or complaints about the research

Contact the Emory Institutional Review Board at 404-712-0720 or 877-503-9797 or irb@emory.edu:

- if you have questions about your child's rights as a research participant.
- if you have questions, concerns or complaints about the research.
- You may also let the IRB know about your child's experience as a research participant through our Research Participant Survey at http://www.surveymonkey.com/s/6ZDMW75.

Consent

Please print your name and sign below if you agree for your child to be in this study. By signing this consent form, you will not give up any of your legal rights. We will give you a copy of the signed consent to keep.

_____

Name of Subject

_____ _____

Signature of Subject Date Time

_____ _____

Signature of Person Conducting Informed Consent Discussion Date Time

_____ _____

Signature of Legally Authorized Representative Date Time

_____

Authority of Legally Authorized Representative or Relationship to Subject

EMORY UNIVERSITY/CHILDREN'S HEALTHCARE OF ATLANTA
ASSENT FORM FOR MINOR SUBJECTS

Study Title: A Kink in the Exercise Plan: How Hair Affects Exercise for Metro-Atlanta African American Teens

Principal Investigator: Haley McCalla, B.S. in Health Promotion & Behavior, EMPH Department

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This page to be filled out by research team at time assent is obtained:

Subject's Age: _____years (If the child is **younger than 6 years old,** assent is not required.)

Subject's Name: _____

Check one box:

☐ **This child is 6 to 10 years old** — must obtain subject's verbal assent (subject's signature not required)

_____
Signature of person soliciting assent of 6 to 10-year-old subject Date Time

---

☐ **This child is 11 to 17 years old** — must obtain subject's signature on page 2 of assent form to document assent

---

☐ In my opinion, this child is unable to provide informed assent for non-age-related reasons, and the PI for this study has been informed of this determination.

- Reason(s):_____

_____

_____

_____
Signature of person soliciting assent (if above box is checked) Date Time

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EMORY UNIVERSITY/CHILDREN'S HEALTHCARE OF ATLANTA
ASSENT FORM FOR MINOR SUBJECTS

Study Title: A Kink in the Exercise Plan: How Hair Affects Exercise for Metro-Atlanta African American Teens

Principal Investigator: Haley McCalla, B.S. in Health Promotion & Behavior, EMPH Department

INFORMATION ABOUT THIS STUDY:

- **Why am I being asked to be in this study?**
  - The study is interested in the thoughts of African American teenage girls from age 13-18 years about hair and exercise.
- **Why is this study taking place?**
  - This study wants to identify common reasons why hair may keep African Americans girls from exercising, strategies these girls use to manage their hair for exercise, and general thoughts about hair and exercise.
- **What will happen to me if I take part in the study?**
  - You will be interviewed for one hour about hair and exercise. You will also have your height and weight measured to find your body mass index (measurement of your body fat based on your height and weight).
- **Will any part of the study make me feel uncomfortable?**
  - Certain questions and/or having your weight/height measured may cause you to feel mild feelings of discomfort or embarrassment during this study.
- **Who can I ask if I have questions about this study?**
  - If you have questions, you can call Haley McCalla at (678) 654-8125.
- **Can I change my mind about being in the study at any time?**
  - You can quit the study at any time.
- **Do I have to be in this study even if I don't want to?**
  - You are not required to be in this study. Participating is your choice.

For subjects 11 to 17 years old: if you agree to be in this study, please sign your name below.

_____

Signature of 11 to 17-year-old Subject Date Time

_____

Signature of person soliciting assent of 11-17 year old Subject Date Time

APPENDIX D- Interview Guide

Interview Guide

1. How do you define "exercise"?
    a. What does "exercise" mean to you?
2. Describe the types of exercise you usually do.
3. How does exercise make you feel?
4. How do you feel when you do not exercise?
5. Describe the thoughts you have when you are exercising.
6. What types of exercise do you enjoy?
7. What is it about this exercise that is enjoyable?
8. What types of exercise do you avoid?
9. What is it about this exercise that makes you want to avoid doing it?
10. *The Physical Activity Guidelines for Americans* says that teenagers should exercise 1 hour or more a day. How realistic does this guideline feel for you?
11. How would you describe your hair?
12. What hairstyles do you typically wear?
13. What do you like about your hair?
14. What do you dislike about your hair?
15. What happens to your hair after you exercise?
16. How do other people react when they see your hair after you exercise?
    a. How does this reaction make you feel?
    b. How does this reaction compare to when they see you any other time?
17. Describe your hair care routine after exercising.
18. What specific hairstyle(s) help if you use them for exercising?
19. How do you feel about the hairstyles you choose to exercise with?
    a. What do you like about the hairstyle?
    b. What do you dislike about the hairstyle?
20. What specific hairstyle(s) do you avoid when exercising?
    a. Why do you avoid the hairstyle(s)?
    b. What do you like about the hairstyle(s)?

    c. What do you dislike about the hairstyle(s)?

21. Describe exercises that you could do that would not cause sweat to significantly affect your hair.
    a. Explain why you chose these exercises.
    b. How, if at all, would you include these in your current exercise routine?
22. Tell me about a time when your hair kept you from exercising.
23. If at all, how has your hair kept you from exercising regularly?
24. How does it make you feel when your hair keeps you from exercising?
25. How do you wish things were different when it comes to your hair?
26. How do you wish things were different when it comes to your exercise routine?
27. What advice would you give to other African American teenagers who struggle with getting enough exercise because of their hair?
28. What is the most important thing about African American teenagers' hair and exercise that people who work in health need to know?
    a. Explain why this is the most important thing.
29. What else would you like to share with me about your hair and how it affects your exercise routine?

APPENDIX E- Code Book for Hair and Exercise Interviews

Name	Description	Example	Hierarchical Name
Exercise			
• Preferred Exercise	Exercises that girls describe as enjoyable to a small or great degree; exercises that they already do or might do in the future	"I like trying new things so I'd say things like hiking is always fun.. let's see I like trying new sports so I used to do soccer and haven't done it in a while, so I would just go outside kind of and play soccer with friends."	Exercise/Preferred Exercise
• Rejected Exercise	Exercises that girls dislike to a small or great degree; exercises they refuse to do	"I hate the push ups. They made me do it, so I would like just do the minimum."	Exercise/Rejected Exercise
• Exercise Circumstances	Refers to where exercise may occur like PE or extracurriculars	"…during P.E. like when we have like pacer test…"	Exercise/Exercise Circumstances
• Rationale for Exercising	Reasons for exercising		
o Health	Better health as a rationale for exercising	"Yoga? I like the feeling of it because I'm in high school and it makes me feel like relaxed... Every Friday we do yoga and we just sit down and like in the dark, which I really liked because I'm in high school. I am stressed."	Rationale for Exercising/Health
o Attractiveness	Attractiveness/beauty as a rationale for exercising	"I naturally have a flats stomach, so I like to keep it like that."	Rationale for Exercising/Attractiveness
o Enjoyment	Enjoyment as a rationale for exercising (considers it fun,	"Um, well I love swimming. It's something like, it's the fort for... The first	Rationale for Exercising/Enjoyment

	ability to socialize and bond with others, etc.)	sport that I've done competitively and it like... It's actually a way for me to like lose weight, complete my goals, and have fun at the same time."	
o Requirement	Required from parents or teachers as a rationale for exercising	"Well, I have weight training—I'm a year-round athlete so I have a weight training class during my school day. So it's about the third period."	Rationale for Exercising/Requirement
• Rationale for Not Exercising	Reasons for not exercising		
o Hair	Hair as an explicitly expressed reason for not exercising	"Sometimes if I like do my hair like before I go to bed or something I might not go out and exercise. Cause it's already done or something like that."	Rationale for Exercising/Hair
o Lack of Time	Doesn't have time for exercise	"Not really. I just, I mean, not only do they make me tired, I don't really have time for them or a place to do them."	Rationale for Exercising/Lack of Time
o Unmotivated	Simply doesn't desire to exercise/ Not wanting to exercise because being sedentary is more enjoyable	"Exercise isn't in a big deal to me, so I just don't exercise."	Rationale for Exercising/Unmotivated
o Pain	Pain as a reason to avoid exercise	"Um, I don't like stretching all that much, I don't really enjoy like the feeling that it gives you and like the pulling feeling. Plus I have muscle spasms sometimes	Rationale for Exercising /Pain

		when I stretch and that's not fun."	
• Emotions Related to Exercise	Refers to how girls feel about exercise		
o Not Exercising	Emotions related to not exercising	"Like free sometimes and then like right now I'm kinda just like clumped together like I'm doing other stuff instead of like exercise."	Emotions Related to Exercise / Not Exercising
o Exercising	Emotions related to exercising	"Um, when I'm playing basketball it's like a thrill."	Emotions Related to Exercise /Exercising
Hair			
• Preferred Hairstyles	Hairstyles that girls state that they enjoy wearing	"I enjoy my braids than my natural hair and plus my parents complain less when I have braids."	Hair/Preferred Hairstyles
• Rejected Hairstyles	Hairstyles that girls state that they do not enjoy wearing	"Like you will not catch me wearing it down. No, no, no. Unless I have no choice. Unless I had no scrunchy, no nothing."	Hair/Rejected Hairstyles
• Exercise Hairstyles	Hairstyles used to cope with exercise	"Um, take it out of the ponytail cause I always wear ponytails to the games…"	Hair/Exercise Hairstyles
• Hair Descriptors	Ways in which girls describe their hair		
o Curly	Includes curly, nappy, kinky, coily, peasy, etc.	"Ah, It's curly, ah very. Its curly kinky."	Hair Descriptors/Curly
o Thick	Refers to hair thickness	"It's very thick."	Hair Descriptors/Thick
o Dry	Refers to lack of moisture in hair	"Um, I've just got to keep my hair moisturized a lot	Hair Descriptors /Dry

		because it gets dry a lot."	
o Hard to Manage	Refers to a girl's expression of difficult to manage hair	"My hair is hard to manage, it's too much, I don't know, it's a lot, I have 4C hair."	Hair Descriptors /Hard to Manage
o Time-Consuming	Refers to hair that requires a large time investment	"Washing it takes like at least two days. Like the whole entire process takes a long time. And sometimes I wish I didn't have to like take so much time to do my hair."	Hair Descriptors/Time-Consuming
• Emotions about Hair	Refers to feelings about their hair	"I really, really like my hair. But sometimes it gets to the point where I just want to cut it all off. But I really, really like my hair. Because I have gotten over the past couple of years, I have gotten to keep my mom off doing my hair and letting me do my own hair."	
• Social Reactions	How people react to a girl's hair before or after exercise		
o Positive Reactions	People responding positively to a girls' hair	"A lot of people at my school, they like my hair. Like even when I… It'll be sweating it up they still be feeling on it."	Social Reactions/Positive Reactions
o Negative Reactions	People responding negatively to a girls' hair	"They just mostly tell me I need to fix my hair…Sometimes their faces are like scrunched up."	Social Reactions/Negative Reactions

Advice			
• AA girls	Advice given to other girls to cope with hair and exercise	"You can find alternate hairstyles to help suit your, um, the way you exercise or find that exercise that you like enjoy, but will also not put too much damage on your hair."	Advice/AA girls
• Health Workers	Advice given to health workers about understanding how AA girls must cope with hair and exercise	"I would think the teacher or coach definitely needs to know that the girl's hair is definitely part of the reason why they aren't participating and that the teacher could approach them with—how would I put this?—with encouragement to explore their own hair. Yeah. Explore their own hair and figure out how they can own it in a way that allows them to explore their body in terms of exercise."	Advice/Health Workers