



McNair Journal

FALL ■ 2015



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The **MU McNair Journal** is the official journal of the McNair Scholars Program (Ronald E. McNair Post-Baccalaureate Achievement Program) at the University of Missouri. Full funding is through a grant from the U. S. Department of Education (Grant. No. P217A070148) at the amount of \$252,000.

The **MU McNair Journal** is published annually. Manuscripts are accepted from McNair Scholars participating in the program at the University of Missouri, Columbia Missouri 65211, (573) 882-1962.

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On the Cover: Anthony Onuzuruike puts on gloves to begin work on his McNair research.



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Message from the Director

It is with great pride that I introduce this outstanding collection of articles from the 2014-15 participants of the MU McNair Scholars Program. The papers presented here represent the culmination of a year's worth of research and scholarly activity. They reflect the energy, creativity and effort of the scholars, themselves, as well as the careful guidance, support and diligence of their faculty mentors. Six very diverse topics are explored and reported in their entirety within this interdisciplinary journal. While their subject matter and journalistic styles may differ, they, along with the other McNair Scholars listed in this publication, are to be commended for their persistence and dedication to this rigorous undergraduate research experience that will benefit them greatly in their pursuits of graduate studies.

Since 1989, the McNair Program has been a University-wide effort that continues to attract students and faculty mentors from a variety of academic departments and fields of inquiry. Students have had the opportunity to learn about the importance of earning an advanced degree, while gaining the skills and tools

that will guide them through their future academic journeys. The program proudly bears the name of astronaut and scientist, Dr. Ronald E. McNair, who died in the Challenger explosion in 1986. His accomplishments and high standards set an outstanding example for these developing scholars.

I am truly honored to be associated with an initiative such as this. So many faculty, staff and administrative members of the MU community have worked to ensure a supportive and cohesive environment that prepares these exceptional students for graduate programs. We are proud to highlight the work of these talented young researchers, in this, the twenty-third edition of the **MU McNair Journal**. Our best wishes go out to all of them as they continue to move along their scholastic continuum.

NaTashua Davis, PhD
Director
McNair Scholars Program

The McNair Scholars Program

BACKGROUND

College students who are considering study beyond the baccalaureate level realize their dreams through the McNair Scholars Program at the University of Missouri-Columbia (MU). MU was one of the original fourteen universities selected to develop a program established by the U.S. Department of Education and named for astronaut and Challenger crew member Ronald E. McNair. The purpose of the program is to provide enriching experiences that prepare eligible students for doctoral study.

PROGRAM ELEMENTS

One of the most exciting aspects of the McNair Scholars Program is the opportunity for junior or senior undergraduate students to participate in research experiences. McNair Scholars receive stipends to conduct research and engage in other scholarly activities with faculty mentors from the areas in which they hope to pursue graduate study. These research internships are either for the academic year or for the summer session and are under the supervision of faculty mentors. For academic year internships, students work a minimum of ten hours per week during the fall and winter semesters. Summer interns work full-time for eight weeks.

McNair Scholars also attend professional conferences with their mentors, go to graduate school fairs, prepare for graduate school entrance exams, receive guidance

through the graduate school application process and obtain information on securing fellowships, graduate assistantships, and loans. Participants learn about graduate school life, advanced library skills, and effective ways to present their work. At the completion of the research internships at MU, McNair Scholars make formal presentations of their research to faculty and peers at the McNair Scholars Conference and submit papers summarizing their work. Students who participated as juniors the previous year continue in the program during their senior year for graduate school placement and to further develop their skills.

ELIGIBILITY

Participants must meet grade point average standards; be U.S. citizens or permanent residents; and qualify as either a first generation college student with an income level established by the U.S. Department of Education, or a member of a group that is underrepresented in graduate education.

All students who wish to be involved submit an application to the program. A committee composed of faculty members, representatives from academic support programs and the McNair Scholars Program selects participants and approves faculty mentors. Research internships are offered to those students who are juniors or seniors and are identified as having the greatest potential for pursuing doctoral studies.

Black Women Ex-Offenders in Columbia, Missouri

STORM ERVIN

Ibitola Pearce PhD, Mentor
Department of Sociology



Storm Ervin is a junior from St. Louis, MO and is member of the University of Missouri Collegiate Scholars and the National Society of Collegiate Scholars. She's also president of the collegiate chapter of the National Association for the Advancement of Colored People (NAACP) and is a member of the Epsilon Psi Chapter of the Delta Sigma Theta Sorority, INC where she is treasurer and social action chair. This summer, Storm recently completed an internship with a local non-profit through the Office of Service Learning's Career Related Awareness Experience.

INTRODUCTION

The U.S has the highest volume of incarcerated individuals in the world. There are over 2.3 million people in American prisons, and people of color make up the vast majority of this population. The study of criminology is very prominent in sociology, which has led many scholars to study prisons- including the effects of imprisonment and the social causes around the imprisoned population, and even how corporate America benefits from the privatization of our correctional institutions. Unfortunately, there is a gender bias; studies overwhelmingly focus on black and brown males. Much less work has been done that discuss black and brown women who are also products of our justice system. Black and brown women are equally as important as black and brown men when studying correctional institutions, especially in terms of the impact it has on the family. When either gender is incarcerated, there are effects on that person's family. The proposed project focuses on black women and will examine their own perspectives on their incarceration: their social characteristics, the types of crimes committed, their perspective on the causes of their predicament, aspects of the lived experiences of the women, the effect incarceration has had on their family, and their current position within society. I intend to interview women who have served their term and are now out.

This study will incorporate theories from well-known scholars such as W.E.B DuBois, Dorothy Smith, Gloria Anzaldua, Michelle Alexander, and Kimberly Crenshaw. This will allow for a detailed analysis of the data. In *Souls of Black Folk* (1903) Dubois discusses the concept of "double consciousness": the black experience of racism forces its victims to understand the workings of both the Black culture and the powerful white system. Blacks must, for survival, understand the two systems simultaneously. Anzaldua expands on DuBois' theory by showing that women of color have a triple consciousness as a double-marginalized population. Kimberly Crenshaw coined "intersectionality" to explain the impact of simultaneous risks to which individuals are exposed to under the marginalize populations in gender, class, and region (1989). Alexander (2012) theorizes how the oppressive practices of the Jim Crow era are still the same in the new millennium as they were in the 1960's; the only recognizable change is that racism is not blunt and masks itself in colorblind terminology. Dorothy Smith (1997) discusses standpoint theory: which is the idea that knowledge is produced from the point of view of the author, or creator of knowledge. In this study black women will be able to create knowledge about their own experiences. Together, these theories will deepen the understanding of what it means to be a black woman affected by the justice system.

HYPOTHESIS

There is no hypothesis in the proposed research. This study will engage in exploratory investigation: wanting to explore the perspectives of black formerly incarcerated woman in Columbia, MO. Over the past 40 years, Sociology and indeed most of the social sciences have turned from the focus on hypothesis testing to what is now known as social constructionism Denzin (2012). Interest in social constructionism comes from the fact that sociology is interested in the study of the meanings human beings create. How do people who live their daily lives understand or give meaning to their experiences? Meaning is given to both their own activities and those of others...

RESEARCH QUESTIONS

My research interests are the knowledge created by women who have been incarcerated.

Problem 1) How do the following factors influence their perspectives?

a) Family relations, b) Education, c) Income

Problem 2) What impact has incarceration had on the following aspects of the family?

a) Employment, b) Children

Problem 3) How has re-entry been influenced by?

a) Age (from sample, age plays an important role. If you come out as a teenager, people are more willing to help. If you come out older, you're more likely to be stuck.), b) Education, c) Employment

REVIEW OF LITERATURE

While many famous sociologists discuss incarceration, black women, and even the factors that lead to black women's incarnation, very rarely are these subjects combined. This is an issue and this review of literature will look at the historical context of race in America, incarceration, intersectionality, and a few reasons for the large population of incarcerated black women in order to merge these distinct facets and understand the problem.

In order to fully grasp the impact of incarceration on Black women, it is necessary to understand the role that race plays in American life. The issue of race and racism has existed since the founding of this nation. Nonetheless, our understanding of it has not been static. Scholars have moved from discussing race as a purely biological phenomenon to discussing race as a social construction. In their book, *Racial Formations in the United States*, Michael Omi and Howard Winant discuss the idea of race and racism in our country. They define racial formations as "the sociohistorical process by which racial categories are created, inhabited, transformed, and destroyed," (Omi 1994:55). They discuss the work of sociologists Robert Blauner and Robert Parks' who were among the first to study race relations in academia, but found the approach of these authors to be inadequate. For Blauner and Parks, racism and racial oppression are the result of economic and psychological forces but the "most important aspects of racism are the attitudes and prejudices of Americans" (Omi 1994:10).

Concisely, the attitudes of the dominant race of people constitute the economic, mental, and emotional stress experienced by people of color. Omi and Winant find this emphasis on attitudes and prejudice too narrow, claiming that "They (Blauner and Parks) neglect both the institutional and ideological nature of race in America, and the systemic presence of racial dynamics in such spheres such as art, social policy, law, religion, and science" (Omi 1994:10). In other words, the idea of racial oppression does not exist solely in "individual attitudes," but it stems from a system that works inextricably to oppress people of color. Thus in 1967, Carmichael made the important distinction between "individual racism" and "institutional racism". Omi and Winant therefore believe that institutional racism is important. Writing long before Blauner and Parks, Dubois had written about the system indicating that the structure of society was hierarchical in which a veil can be said to separate the two racial subgroups.

The imagery of the veil allows us to understand that while the two groups are separated, they are also connected: The veil is both a barrier and a link. Dubois says "...the Negro [is] born with a veil, and gifted with second-sight in this American world, - worlds which yields him no true self-consciousness, but only lets him see himself through the revelation of the other world" (Du Bois and Provenzo 2005). Through his interpretation of the veil, black men come to understand themselves, their destiny, and their identity through the lens of White America. Adding to this, the black identity, according to Omi and Winant's theory of racial formation, is 'created' by white people who make derogatory speculations about black inhabitants. Throughout history, race has been defined by white lens because black people, before Dubois, did not define themselves in academia, popular culture, or in society. Definitions of black identity have been left up to white scholars and media personnel. The problem lies in the fact that in these racial formations by non- black people, the black man, has come to understand himself. Violent, hyper-masculine, criminal, brutes are, but few of the images constructed black men since the days of slavery. Dubois writes from the perspective of a black man about the social standpoint of black men.

However, the black woman is left out of Dubois' critique. The examination of the oppression against black women is key to understanding black women's incarceration. The black man uses the way in which white America views him, the black male, to understand his how the dominant culture constructs him as inferior, but the black women's image is constructed by both white America and black men. Kimberle Crenshaw coins the term "intersectionality" to describe the multiple sectors under which the black woman faces injustice. She uses the analogy of a traffic intersection to explain her concept:

Consider an analogy to traffic in an intersection, coming and going in all four directions. Discrimination, like traffic through an intersection, may flow in one direction, and it may flow in another. If an accident happens in an intersection, it can be caused by cars traveling from any number of directions and, sometimes, from all of them. Similarly, if a Black woman is harmed because she is in the intersection, her injury could result from sex discrimination or race discrimination (Crenshaw, Kimberle 1989:44).

Here, she explains that a black woman is marginalized. This is symbolized through the car crash. Racism represents one direction of traffic. Sexism represents a perpendicular direction of traffic. It is at this intersection that the black woman finds herself oppressed. This oppression is represented by a car crash. The intersection of racism and sexism constitutes the daily struggles against black women. White women do not encounter racism and black men do not face sexism. Vis-a-vies, these two systems, the black women is alone in her struggle. In America's correctional system her struggle increases her chances of being behind bars.

In her book, *The New Jim Crow: Mass Incarceration in the Age of Colorblindness*, Dr. Michelle Alexander discloses truths about the mass incarceration of black people. One major concern is that the black community is being warehoused: "More African American adults are under correctional control today- in prison or jail, on probation or parole- than were enslaved in 1850, a decade before the civil war began," (Alexander 2010:180). The fact that there are more black bodies under correctional control than were enslaved speaks volumes to how the power of authority has shifted over time. Pre-Civil War era, the mechanism of domination over black people was slavery, which was seen as normal. After the civil war, lynching increased and so did the number of people in the KKK. Many civil rights organizations were created as a response to this problem; however, even after the Civil Rights Movement control over black people by white people did not cease. After the civil war, the form of exercised power shifted to the Jim Crow era, which enforced separate institutions and unjust laws for people of color. This bluntly racist period did not last for long. It was followed by the struggles of the Civil Rights Movement in which blacks called for equality and integration. President Lyndon B. Johnson signed the Civil Rights bill in 1964 making the Jim Crow idea of "separate but equal" illegal. But things did not end there. Racism continued to evolve and the system has found new ways to retain white privilege. It has evolved into what Alexander calls *The New Jim Crow*. In order to control colored bodies in the current era, the prison industrial complex has expanded its business by endorsing conservative politicians who implement policies that make it easier to imprison people of color and harm entire communities.

Alexander uses the War on Drugs to prove that the laws in place affect blacks more harshly than whites. She says "black and brown people are far more likely to be imprisoned..." (Alexander 2010:182). A black or brown person subject to harsher punishment is not unique to only the war on drugs; it applies to any crime. This problem is seen throughout our entire correctional system and the laws imposed through it.

THE NEED TO STUDY BLACK WOMEN

Much of Alexander's work and the literature produced on incarceration in the US largely focus on the problem of black men. Black women remain unaccounted for and left out of the bigger picture. According to the U.S Census Bureau, black women are the largest incarcerated population of women in the United States (National Coalition of Black Civic Participation, Black Women's Roundtable 2014). While the National Coalition of Black Participation points out that black women's incarceration rates

have declined over the years, "they remain overrepresented as part of the female inmate population. In 2010 [...] black women still experienced an incarceration rate 2.8 times that of white women" (National Coalition of Black Civic Participation, Black Women's Roundtable 2014:50). Although black women do not experience incarceration at the same rates as black men, they are overrepresented in our prison system. As of 2013, blacks represented 13.2% of the nation (U.S Census Bureau 2012). In 2012, the U.S Census Bureau reported 22,717,000 black women in the country (U.S Census Bureau 2012). The same source reported 99,300,000 white women (U.S Census Bureau 2012). In 2013, the Department of Justice disclosed 23,100 black women had been sentenced to federal or state prison and 51,500 white women had been sentenced (Carson, Ann E. 2014:8). Roughly .5% of white women experienced incarceration in 2013 compared to .9% of black women (Carson, Ann E. 2014:8). Black women experience incarceration more than any other race of women.

But why is it this? U.S Department of Justice published author, Jennifer Cobbina, says "empirical evidence indicates that victimization, economic marginalization, and substance abuse disproportionately affect women and play unique roles in shaping female criminality" (Cobbina 2009:35). It is important to note that crime is not just about engaging in illegal activity; it often stems from deeper issues. These issues become familiar to many disadvantaged women in the system. Cobbina goes on to explain how victimization and marginalization leads to women offenses. She notes that "child abuse is directly tied to subsequent delinquency" (Cobbina 2009:35). If as a child, a woman experienced some form of abuse, then in her later years she is likely to engage in delinquent behaviors. Cobbina also mentions that a "disproportionate number of women offenders are minorities who come from economically distressed neighborhoods [...] whom provide little opportunities for employment. [...] Thus, the structural condition that women reside in coupled with increasing economic pressure drives many women to engage in illegitimate activities to survive" (Cobbina 2009:36). Here, Cobbina indicates that the pathway to women offenders lies in their background. Abuse and socioeconomic income are factors that are out of a person's control, but can ultimately lead them down a path of crime, which, is seen as their own fault.

The ever-growing population of black women offenders and the causes for their behaviors are problematic. The societal construct of poverty and racism catapults the already marginalized black woman into further marginalization and hardship. Black women's victimization and economic status leads her down a road of crime, but it is ironic that the same does not hold true for white women. In terms of physical, domestic, and child abuse, white women are not victimized as much as black women (Hardisty, Jean 2013:10). This may speak volumes as to why they are not as likely to be incarcerated.

Upon further research, I hope to uncover from black women themselves the reasons they feel they have been incarcerated. Through their stories, the academia world will not only be able to use sociological concepts such as the veil, intersectionality, and the new Jim Crow to understand the concern, but real human

stories will give way to a new understanding of the experience of incarcerated black women.

STUDY SIGNIFICANCE

The study of formerly incarcerated black women is essential because the voice of women has been largely excluded in the literature on incarceration. Women have often been invisible because most of the focus has been on men. Interpretations may be generated from the number of black women behind bars, but these interpretations may not reflect the perspectives of the women themselves. These perspectives must be taken into account. That is the goal of social constructionism. The perspectives of black women are imperative because no other source can tell their stories the way that they can. This study will allow black women to tell of their experience and will allow me as a researcher and sociologist to incorporate their lived experiences which will allow me to generate both knowledge and theories about black women in the prison industrial complex.

METHODOLOGY

Data will be collected on a sample of 10 formerly incarcerated Black women in the city of Columbia. This will be obtained via the snowball method: this will allow us to find and interview formerly incarcerated women via word of mouth. One interviewee will recommend another and this is how we intend to gather our sample of women. A textual analysis will be conducted on the responses to questionnaire. A textual analysis will be used to analyze data. It will draw inferences and generate meaning from oral responses and secondary literature. The responses will come from the women themselves. Simple frequencies and percentages will be calculated when appropriate.

DELIMITATIONS AND DIFFICULTIES

This study will not discuss the experience of the women who are still behind bars, nor generate information about their prison experiences. The focus is on why they believe they entered the prison system and how being incarcerated has influenced their life, subsequently. This study will also not be testing any hypothesis. The purpose is not to prove or affirm a certain belief, but the goal is to objectively generate knowledge from a minority population. Given the limitations of the Institutional Review Board, subjects will not be on parole or probation, disabled, pregnant, or under the age of 18. These limitations decreased the number of potential subjects. Because of this, I expanded my population to include the family members of ex-black women offenders.

DATA ANALYSIS

Demographics

A major factor that influenced the women's perspectives on their crimes was the relationships they had with family members. All three women admitted to having troubled dealings with their parents, siblings, or both. One subject, Subject A, who is now 28 years old, expressed that in her youth she was not close to her mom or her siblings. She admitted that she had many physical

altercations with her five sisters and her mom and she were simply not close. Even to this day she is not as close to her mother as she would have liked to be. She believes that the distress in the household led to her unruly behavior in school. Her first arrest came at the age of- thirteen after she engaged in a physical fight with a classmate. She left her peer with broken ribs, and in return, she was left with her first charge. Looking back she now believes that her fight at school and other disturbing activities were a direct reflection of the kind of behaviors seen in her home.

Another subject, Subject B, who is thirty- four years of age, alluded to how the behavior of her parents burdened her upbringing. She is the eldest child of two siblings. Her mom and dad originally raised her. However, her dad went to prison and her mother had an addiction to drugs. She did not specify the name of the drug, but she did mention that her aunt subsequently raised her. She and her aunt were close, but the aunt soon became part of the criminal justice system as well. After this, the subject was sent off to foster care. When asked to describe her life, this subject used the word "angry." Tears erupted when she described these relationships and having to be in foster care. Even though she was the focus of the interview, she kept referring to the fact that her dad was presently incarcerated. There is no doubt that these experiences and the lack of good parenting still haunts this subject. The influence of her parents and primary socialization still affect her emotional stability in adulthood: angry. Angry. The word used over and over by this subject was "anger."

My research guided me to question if this anger early on in life solely stemmed from sources inside the house. How did the external sources that shaped the subjects' reality play a role in their delinquent life? I therefore asked the subjects about their income and their level of educational attainment. Each noted that none of her parents went to college; which, we know in sociology is a strong indicator of income and whether the child will attend college. Each subject admitted that she grew up as a member of the lower class: none were either from the middle or upper class. This suggests that their families were faced with financial struggles most of the time: financial struggles that included feeding relatively big families. As mentioned earlier one subject had 5 siblings. The second subject admitted to coming from a big family as well. These families and the children had to be clothed, fed, and housed. The third subject came from a family of three children. While being poor is not the cause of crime, sociological studies reveal that the poor carry a heavier burden of criminal activities. Some of this has to do with the fact that the poor are more closely monitored and targeted by officials. Further they are unable to engage the services of experienced lawyers, unlike the rich who are better able to avoid conviction. Following the problems of their childhood, two of the subjects are presently on welfare and have therefore perpetuated the low-income cycle begun in their childhood.

The crime committed by Subject A had to do with lack of money. As a teenager, she ran away from home because of the relationship she had with her mother. When she left, she became desperate for money to support her. The subject resorted to writing fraudulent checks. The crime and arrest happened at age seven-teen. While middle class and rich people do write bad

checks, it is clear that the subject's desperation led to this criminal activity.

The Family

Typically, when a person is incarcerated or jailed, their absence from their home has some bearing on their families. This notion is often brought up when the idea of poor fatherhood is mentioned. Many black mothers are single mothers because they have children whose fathers are away in jail or prison. But what about black mothers who go to jail? Are the fathers left to be single fathers? In this section I will explore what bearing the mother's confinement had on her family.

Each subject had children. However, Subject A, who was arrested as a teenager, did not have children at the time of her arrest. She did not have children to later on in life and therefore felt that her incarceration had no effect

Subject B did have children at the time of her arrest. When she was jailed her children were 14, 11, and 9 years of age. Her eldest child at the time was responsible for looking after the eleven and nine year old: meaning that children had to look after children. Subject B admitted that knowing her children had to take care of each other was difficult for her. She felt she had failed them and admitted to having to "regain their trust." This feeling implies that the jail system has an emotional bearing on families. In this case, it made the children assume adult roles and showed that there are not many progressive options for children whose parents go to jail.

Because I extended my research to the family members of ex-black women offenders, I was also able to interview Subject B about her aunt, who is currently in prison, subject C. Subject B admitted that Subject C raised her because her mother suffered with drug abuse. . From a young age, subject B witnessed her aunt in and out of jail and prison. Subsequently, subject B and her brother became part of the foster care system. Through interviewing Subject B about Subject C, I was able to understand how the problem of black women and corrections can be generational. Subject B's main caretaker went to prison and later on in life Subject B was also caught up in the criminal justice system. This study showed that black women in the correctional system could be a result of parenting and problems affecting children from one generation to the next.

Re-entry

It is widely known that once a person has a criminal label attached to his or her name, chances for success in life are greatly diminished. Re- entry is the process of getting out of jail or prison and going back into society. In this section I will discuss what that process was like for these three women. Subject A went to jail at an earlier than the other subjects. When she returned she was provided with a high school counselor and support groups to foster her growth. She admitted that she did not keep the same friends that she had prior to going to jail. She went on to receive a bachelor's degree and is currently a medical assistant. Subject A fared well compared to the other subjects. Subject B went to jail at

age 32. When she left, she was without a job. The highest level of education she received was a high school diploma. She admitted that when leaving jail she was provided with a public defender, the resource given to her upon leaving. She currently does not have a job. Because data gathered on subject C came from a secondary source, there was not much information on her re-entry process. Her highest level of education was gaining her GED. From the knowledge gained from subject B, she was a repeat offender, having gone to and from jail and prison since subject B's childhood and is currently there.

DISCUSSION AND CONCLUSION

This study has revealed many things about life after incarceration for the women I interviewed. Because the study was limited to three subjects, the evidence is not sufficient enough to make generalizations; however, there is a lot to be said about the subjects at hand.

One important issue is that of anger. Each subject admitted to being and experiencing much anger from their childhood into their adult lives. For Subject A and B, anger seemed to be at the root of their misbehavior and problems with the legal system. The question at hand is what produced this emotion? It is feasible to believe it came from an unstable home life. Subject A never had strong emotional ties with her family. These were the first humans to socialize her into this world. This was the first active group to teach her about the world; yet, even today, she wishes that she and her family were closer. Subject B's instability in her home came in many forms. She had a drug problem. Her father was in prison. Her aunt became her caretaker and she too ended up in prison, leaving the subject to be raised in foster care. From an early age, subject B has dealt with shifts in parental caretakers and nurturers. She has seen those she loved taken away from her for extended periods of time. When discussing her father and aunt, the subject wept during the interview and apologized. She insisted on continuing with the interview. While there were no data gathered on why Subject C had drug paraphernalia in her possession, it can be inferred that she too has dealt with harsh life circumstances. Her sister the mother of Subject B also battled with drugs. Subject C never had children of her own, but raised her sister's children whose life she was in and out of due to incarceration. The lifestyles of these women, years before their experience with the jail system, have been very unfortunate. Being raised in the lower-income homes and having parents who are not emotionally or physically consistent in their lives, are reasonable explanations for the anger these women expressed.

Another interesting topic of discussion is the reasons these women committed the crimes In Dr. LaTanya Skiffer's dissertation, *Views and Perception of What Causes Crime: The Case of Black Female Offenders*, she explores the reasons that black women offenders gave for their criminal behavior. In her study 40% of the inmates went to jail for being "riders." This is defined in her dissertation as "women expressing the willingness and commitment to do anything for loved one(s), no matter the cost" (Skiffer 2006). This signifies that the women committed these crimes in order to please their loved one or ones. Typically the love one was their male partner. However, contrary to Skiffer's

study, this study shows that women did not seek approval from their partner; at least not in the case of Subjects A & B. They, instead, blamed their crime on anger and not having a proper release for that anger. It is possible that upon further research, my subject may have shown more “rider” characteristics.

When trying to explore the lived realities of black women ex-offenders, this study was able to gather data on three women. The low number of subjects was due to the difficulty and limitations of recruiting subjects; however, a thorough analysis of the data collected on these women was presented in this paper. Future research will need to gather data on a larger sample in order to see whether or not this problem of unstable homes and difficult childhoods are issues that women, in general, see as a major problem. Coming from low socioeconomic and unstable households, the crimes of these women ranged from physical altercations, writing fraudulent checks, assaulting police officers, and drug charges. The women themselves saw the emotion “anger” as the root of their crime. For some the crime took a toll on their role as a mother. In one case, children had to look after children and the mother had to work to regain the trust of her children. Upon re-entering society the women’s source of support varied due to when they went to jail. The younger subject had the most support and was the only one to obtain a college education after incarceration. She is also the only subject currently employed.

This research is significant because it shows that crime is not a surface level act. There is depth to people’s actions. Financial struggles, negative emotions, and troubled primary socialization, which lead to weaker family ties, the black women in this study show that there is more to a crime than solely the action itself. It is up to society as a whole to unpack these issues. What is causing anger in the household? Anger is an emotion that is usually associated with males in our gendered society. Women are not expected to carry too much anger forward. Females are assumed to be flexible and compliant: to forgive and leave all those angry feelings behind. However, here we see that these societal expectations are unrealistic. Another question that comes out of this study is: what happens when there is generation after generation incarceration and low income within a family? How are adults with troubled childhood being cared for in their adult lives? Once these questions can be answered and solutions found, it is likely that there will be a decrease in crime among black women.

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APPENDIX 1 Research Consent Form

Project Title: The Perspectives of Black Women on Their Lives Involving Correctional Control

About the Researcher:

My name is Storm Ervin. I am a senior at the University of Missouri Columbia. I am currently an intern for the McNair Scholars Research Program and enrolled in an Honors Capstone for my major, Sociology.

About the Research:

For my research, I plan to interview women of color who have previously served time in a local, state, or federal correctional facility. The interview will get the women’s point of view on their experiences before and after incarceration. From their responses, I will code for themes and theories produced by sociologists and researchers who have done similar studies. At the conclusion of my research, I hope to present a document that informs the academic community about the perspectives of previously jailed black women in Columbia, Missouri, on what led to incarceration and their experiences of reentry to family and community life.

About the Subjects:

I will gain access to the subjects, previously incarcerated women in Columbia, MO, via resources provided to me by the non-for-profits. These organizations were referred to me by the Boone County Jail. Subjects must identify as a black woman and have formerly been jailed or incarcerated. Subject may also identify as an immediate relative of an ex-offender. Subjects **CANNOT** still be under any correctional supervision (including but not limited to probation or parole), under the age of 18, pregnant, or disabled.

Incentive:

Subjects will receive twenty- five dollar Visa Gift Cards.

Research Procedure:

The study will include a short demographic survey and a one-on-one in-depth interview with each subject. The interviews will take from about 45 minutes to 1 hour, and will be audiotaped with the consent of the subject.

Protection of Subjects:

For the research publication, subject's name will be replaced with numbers. Revealing details such will be omitted from transcription and any publication. Subjects will be given this consent form and informed that at any time they may opt out continuation of this study. All the consent forms will be kept in a secure place from the data and from the interview tapes. All identifying information on the questionnaire will be replaced with codes to protect subject confidentiality.

All subjects may request a summary of the results of the study.

In order to receive the \$25 visa gift card, Accounting Services at the University of Missouri will have to know subjects name and address; however, the data collected and all other identifying information about each subject will be kept completely confidential.

If you agree to participate in this study, you are agreeing that you are a black woman who has been incarcerated or jailed, that you are an immediate relative of a black woman who has been incarcerated or jailed, that you ARE over the age of 18, that you **ARE NOT** pregnant, and you **ARE NOT** disabled.

Contact: For any questions, please contact any of the following:

Campus IRB Compliance Office, Office of research, 205 Jesse Hall, Columbia ,MO 65211, (573) 882-9585.

Storm Ervin, Dept. of Sociology, 312 Middlebush Hall, Columbia, MO 65211.

Professor Tola Pearce, Dept. of Sociology, 312 Middlebush Hall Columbia, MO 65211, (573) 882-7265.

I _____ have read the
information provided by the researcher and willingly consent to
participate in this study.Signed: _____
Date: _____

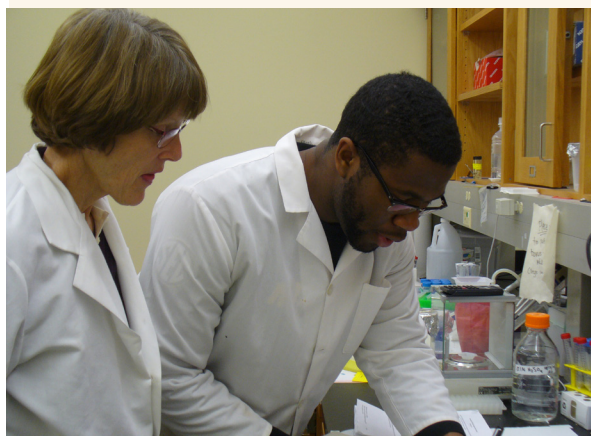
By signing this form, you are giving your consent to be involved in the study. I will photocopy this form and send a copy for your records. Thank you for your participation!

The Development of a Biochemical Assay to Measure the Impact of Maternal Leptin Levels on Skeletal Collagen Content of Adult Male Offspring

ANTHONY ONUZURUIKE

Charlotte L. Phillips, PhD, Mentor

Department of Biochemistry



Anthony Onuzuruike is a George C. Brooks Scholar and is president of Project Science, an organization that seeks to expose elementary school children to the wonders of science. In addition to volunteering at Benton Elementary School and conducting undergraduate research, Anthony also enjoys listening to gospel music.

This fall, he plans on continuing his research on hyperleptinemia and its effects on offspring and bones. He hopes to find the connections to leptin and its sexual dimorphic effects on gender.

ABSTRACT

Maternal diet and obesity during pregnancy along with the uterine environment can affect the adult offspring's propensity to develop metabolic diseases such as hypertension, diabetes, obesity, and renal disease in adulthood. This phenomenon is described as developmental programming. Leptin, a satiety hormone produced by adipocytes, is significant to the regulation of body weight and may play a role in fetal programming. Hyperleptinemia is higher than normal levels of leptin. Those who develop obesity or hyperglycemia become insensitive to the leptin hormone over time and tend to become hyperleptinemic. As leptin concentrations are elevated in these conditions, along with metabolic disease, studies have shown that bone can also be impacted via developmental programming. Ongoing studies in our laboratory indicate that adult male offspring challenged with a high fat diet (HFD) change their femoral geometry to compensate for compromised material, however offspring from genetically hyperleptinemic mothers do not respond. We reasoned that maternal leptin concentration may play a role in developmental programming through maternal obesity or diabetes. Collagen is a structural protein that contributes to the quality and strength of bone. Advanced glycation end products (AGEs) are by-products of a hyperglycemic diet that impact collagen crosslinking and bone quality. In order to evaluate the effect of maternal leptin concentration on the offspring bone material, we have optimized and streamlined two assays. The first assay is the hydroxyproline assay. The hydroxyproline assay will give us an indirect measure of the collagen content in the sample bones. The second assay is an AGEs quinine assay. AGEs quinine assay will allow us to calibrate a fluorescence unit and indirectly measure AGE content. With these assays, we can determine if maternal leptin concentration alters the collagen content and AGE accumulation in the tibia of offspring.

INTRODUCTION

Maternal diet and obesity during pregnancy along with the uterine environment can affect the adult offspring's propensity to develop metabolic diseases such as hypertension, diabetes, obesity, and renal disease in adulthood. This phenomenon is described as developmental programming (1)(2). Leptin, a satiety hormone produced by adipocytes, is involved in the regulation of body weight. Adipocytes secrete leptin to signal the brain to reduce food consumption and increase energy expenditure. Elevated maternal leptin levels may have an effect on developmental programming since it is commonly associated with glycemic and obesity status (3).

Developmental programming implies the development of the entire organism, thus, bone can also be programmed as well. Although there are minimal studies evaluating maternal leptin effects on offspring bone, ongoing studies in our laboratory have led us to hypothesize that maternal leptin levels may play a role in developmental programming and impact the bone integrity of adult male offspring and differentially affect male offspring bone, specifically when challenged with a high fat diet. To investigate this, we utilized the $Lep^{rd/+}$ (db/+) mouse model which has a heterozygous mutation in the leptin receptor which results in hyperleptinemia and obesity. The db/+ mothers had significantly less functioning leptin receptors due to the heterozygous genotype and had higher than normal levels of leptin. WT mothers served as a control in comparing the genetic model (db/+). WT mothers had normal levels of leptin and functioning leptin receptors to respond to leptin. In addition to the genetic model of hyperleptinemia, a pharmacological approach was also utilized in which osmotic pumps containing either saline or leptin were implanted into WT females before being mated with WT males. The saline injected mothers served as the sham control to the leptin injected mothers. Saline injected mothers had normal levels of leptin and functioning leptin receptors. The leptin injected mothers, were hyperleptinemic with functioning leptin receptors. WT offspring from each at the 4 maternal treatment groups were put into two groups: normal control diet and a high fat diet (HFD) introduced at 19 weeks post weaning for 5 weeks (Figure 1).

| Mom's Treatment | Leptin Levels |
|-----------------|---------------|
| Wild Type | Normal |
| DB/+ Model | High Levels |
| Saline Injected | Normal |
| Leptin Injected | High Levels |

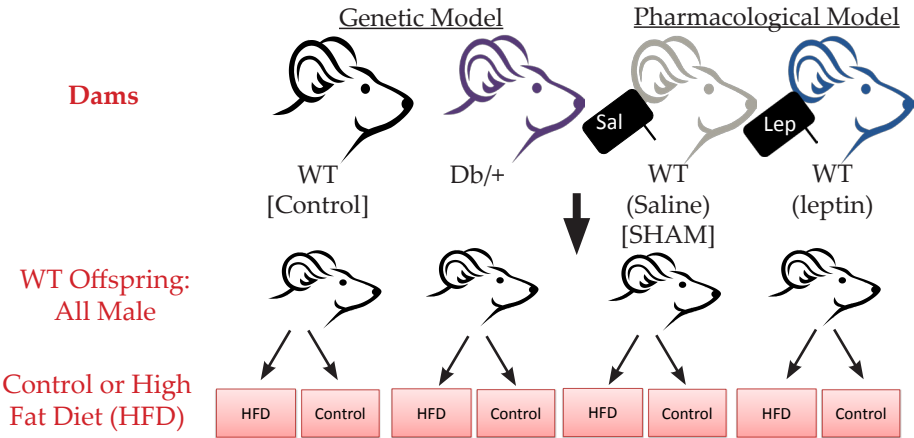


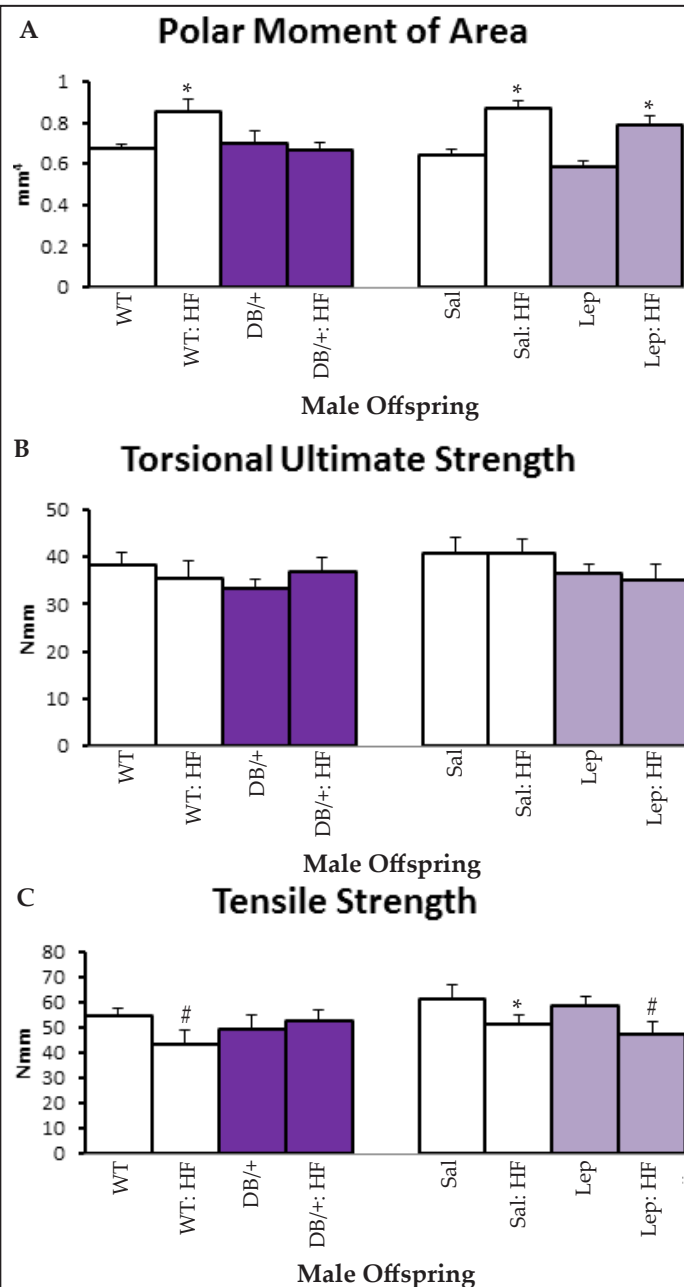
Figure 1: Study Set-Up
Table (left) explains the characteristics of each maternal treatment group. Flow chart (right) illustrates how the study was set up to form the treatment groups

The bone strength and integrity of the WT male offspring were evaluated at 28 weeks of age. Bone strength is dependent on two components, the shape or geometry of the bone and the material the bone is made of. Polar moment of area is a mathematical prediction of bone strength based on the overall geometry of the bone. Ongoing studies in the our lab have evaluated the femoral polar moment of area and showed significant increases in adult male offspring on a HFD compared to those on a control diet. While offspring from WT, saline injected, and leptin injected mothers showed an increase in polar moment of area when challenged with a HFD, male offspring from db/+ mothers did not (Figure 2). Torsional loading to failure was used to analyze the strength of the bone. Torsional ultimate strength (T^{max}) measures the amount of force it takes to break the bone, but this measurement doesn't take out the geometric aspect of

strength. Tensile strength (S_u) estimates the material strength by mathematically subtracting the geometric contribution of strength from the overall strength (T^{max}). The T^{max} of femora from all the offspring were equivalent. The (S_u) did show a trend that was opposite of the polar moment of area. The trends hinted at a decrease in material strength once challenged to a high fat diet. Taken together, this data suggests that femora from adult male offspring challenged to a high fat diet (HFD) change their femoral geometry to compensate for compromised material, however offspring from db/+ mothers do not respond to the HFD.

Bone is comprised of an inorganic component (hydroxyapatite) and an organic component which consists of primarily type I collagen. Collagen is a structural protein that contributes to the quality and strength of bone. Type I collagen is synthesized and secreted by cells, and forms crosslinks with other collagen outside the cell. The crosslinking of collagen impacts the elasticity of the collagen fibers and the bone. Advanced glycation end products (AGEs) are naturally formed in the body, and are by-products of a hyperglycemic diet (4)(5). They occur when glucose and other molecules such as proteins react. The formation of AGEs alters collagen crosslinking which affects bone quality by increasing stiffness. As stiffness increases, the bone becomes brittle and less elastic.

To further investigate the effects of maternal leptin on the WT male offspring bone material, we developed an assay to measure the levels of both collagen and AGEs. Hydroxyproline is a hydroxylated form of proline found predominantly in collagen. Collagen is 90% of the organic component of bone and hydroxyproline makes up 20-30% of the total amino acids found in collagen. Therefore, hydroxyproline can be used as an indirect measurement of the collagen content (6)(7). The AGEs quinine fluorescence assay takes advantage of AGEs natural fluoresce, and it uses fluorescent quinine standards to indirectly calibrate relative AGE levels. With these assays, we have begun to determine if maternal leptin concentration alters the collagen content and AGE accumulation in the tibia of adult offspring.



METHODS

Animals

In a pilot study, we evaluated three right tibias from each treatment group [28 week old wild type (WT) male mice offspring of WT (mated with db/+ males), db/+ (mated with WT males; double knockout were infertile), leptin injected, and saline injected (via osmotic pumps) mothers (one offspring per mother) (Figure 1)]. The specific mating with WT mom and db/+ mothers served to help control for similar uterine environment. The bones were collected as two separate cohorts. Cohort 1 had all four maternal groups, and their offspring were on the control diet. Cohort 2 repeated all four maternal groups, and their offspring were placed on the high fat diet as adults (Figure 1). The high fat diet (HFD) was introduced at 19 weeks post weaning for 5 weeks. The tibias were previously harvested, cleaned of soft tissue, wrapped in 1X PBS soaked gauze and stored at -20°C.

μCT Scans

Right femurs were excised from 28 week old mice and cleaned of soft tissue. μCT scans were performed in a μCAT II machine (Siemens Medical, Pleasanton, CA). The data was reconstructed using the Amira 3.1.1 software package (Mercury Computer Systems, Chelmsford, MA) to obtain geometric values (8).

Torsional Ultimate Strength

The same femurs were then potted in a unique testing device using methyl methacrylate. A constant test section of seven mm was maintained for all specimens. A constant torsional force of 10mm/sec was then applied using a Stable Micro Systems TA-HDi machine (Stable Micro Systems, Surrey, UK) with a five kg load cell. The maximum force required to break the bone was determined by the computer controlling the test machine (8). This value, in conjunction with geometric data from μCT analyses, was used to calculate maximum ultimate breaking strength, stiffness, material shear modulus, tensile strength and energy to failure using standard biomechanical equations.

Combined Hydroxyproline and Advanced End Glycation End products (AGEs) assay

In order to analyze the composition of the tibia, an hydroxyproline assay was used to determine collagen content and a quinine fluorescence based assay to determine AGE levels (Figure 3).

Soft tissue was first removed from the bones and the bones demarrowed. Then the bones were lyophilized for one hour to dry out the bones and remove any excess water weight. The bones were then hydrolyzed using 1000 μL 6 N HCl in a baking oven for 3 hours at 124 °C in order to free amino acids and AGEs. Afterwards the samples were reconstituted overnight in our custom desiccator setup using NaOH pellets and a vacuum hose with an acid trap connected. Once the samples were dry, they were reconstituted using 1000 μL of 0.001 N HCl. The samples were vortexed periodically for 30 minutes before they were centrifuged to separate non-soluble bone material and the supernatant that contains the amino acids and AGEs. The supernatant was then run through the two assays.

Figure 2: Preliminary Bone Strength Data of Wt Male Offspring

A: The polar moment of area predicts the strength of the bone based on the geometry of the bone.

B: The torsional ultimate strength is the amount of force it takes to break the bone.

C: Tensile strength is a measure of the material strength. It is calculated by subtracting the geometric aspects from torsional ultimate strength. (Values represent means ± SE) n=5-8

* p<0.05 compared to mice on the control diet from the same maternal treatment group

p<0.09 compared to mice on the control diet from the same maternal treatment group

Streamlined Assay

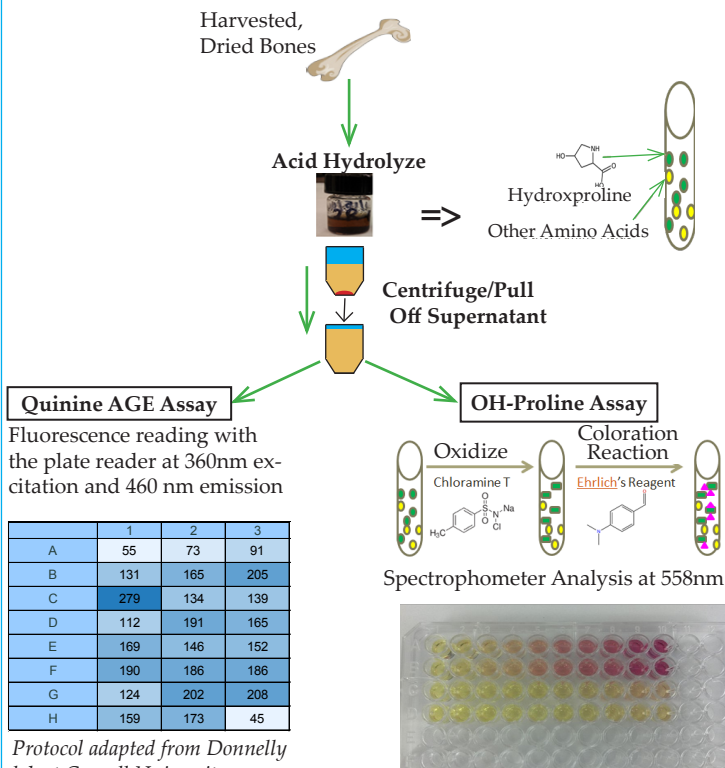
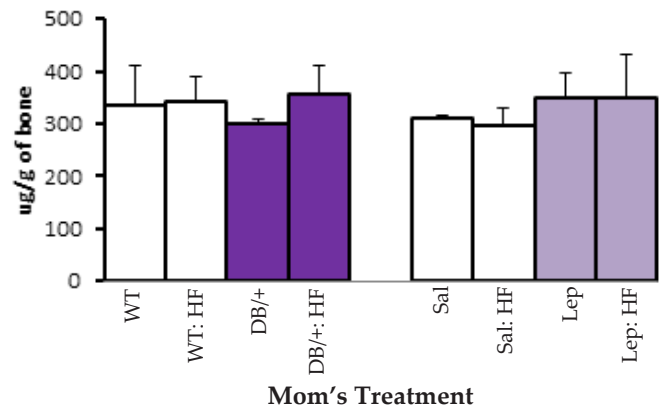


Figure 3: Collagen and AGE Composition Protocol
Flow chart of the streamlined assay used to begin to measure collagen and AGEs in order to evaluate the effect of maternal leptin concentration on bone material.

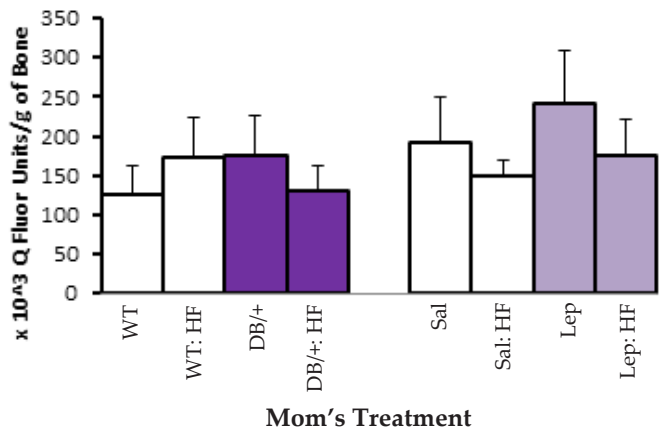
Collagen content in the bone was indirectly measured using a hydroxyproline assay. The significance of the curve is measured with an R^2 value of 0.99 or above. The standard curve for hydroxyproline assay was used to measure relative absorbance levels of samples based on the known concentration of six standards (from Sigma-Aldrich) at 3, 2, 1, 0.5, 0.25, 0.125 $\mu\text{g}/100\mu\text{L}$ in 0.001 N HCl. 3 μL of each sample supernatant is used in the assay. Chloramine T and Ehrlich's reagent are used to oxidize and colorize the solution. This allowed us to indirectly measure collagen content by measuring the intensity of color in a colorimetric assay.

Standard curve for quinine assay was used to indirectly calibrate relative AGE levels of samples based on the known concentrations of seven standards of quinine (from Sigma-Aldrich) at 300, 200, 150, 100, 50, 25 ng/mL . Based on the mass of bone, 1 mg of bone was calculated to be in each well for fluorescence measurements. The readings were compared to quinine standard curve.

A Hydroxyproline Assay



B AGE Quinine Assay



C AGE Normalized To OH-Pro

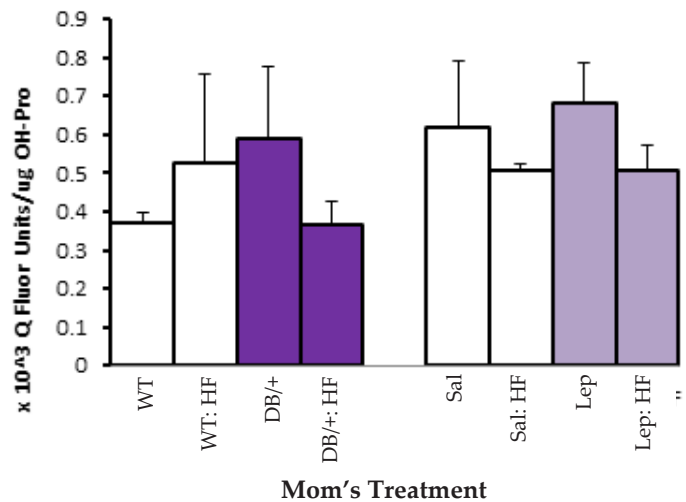


Figure 4: Bone Material Assessment: Quantifying Collagen and AGEs

A: Hydroxyproline measurements of different treatment groups using colorimetric spectroscopy assay

B: Fluorescence measurements based on known quinine concentrations. Quinine fluorescent was used as a unit of fluorescence for AGEs

C: AGE readings normalized to the hydroxyproline concentration measured. (Values represent means \pm SD) $n=3$

RESULTS

Hydroxyproline Assay

Preliminary data only accounts for $n = 3$ and cannot be looked at as statistically significant. Leptin injected and wild type mouse bones showed similar amounts of hydroxyproline on a control diet (Figure 4a). Leptin injected and wild type mouse bones on the high fat diet did not seem to exhibit differences from control diet (Figure 4a). Saline injected mice had trends of lower amounts of hydroxyproline compared to the leptin injected and wild type both on the control and high fat diet. The db/+ mouse model on a high fat diet did show a trend for an increase in hydroxyproline content compared to db/+ on control diet.

Advanced Glycation End Products (AGEs) Quinine Assay

AGEs in right tibias were measured using the quinine fluorescence assay using known standards to create a standard curve. The significance of the curve is measured with an R^2 value of 0.99 or above. This method allowed us to measure fluorescence as a unit of quinine and indirectly measure AGEs. All treatment groups showed a decrease in fluorescence once introduced to a high fat diet except for wild type mice (Figure 4b,c). The same pattern was seen when AGEs were normalized to the hydroxyproline content (Figure 4b,c).

DISCUSSION

In this pilot study, maternal leptin levels do not alter overall bone strength and bone material collagen content in adult offspring on control diets. Yet, when offspring were fed a high fat diet the bone geometry, bone strength, collagen content, and AGE crosslinks appear differentially impacted based on maternal leptin status. The preliminary data suggested that a HFD induced a better bone by increasing femoral diameter in all treatment groups except for db/+ offspring. After conducting three trial runs with hydroxyproline and AGE quinine assay, it seems like maternal leptin levels do differentially affect male offspring collagen content and AGEs. Hydroxyproline trends don't seem to be affected, but AGE levels did show trends based on maternal leptin levels. All treatment groups, except for WT, showed a decrease in AGE levels on a HFD. WT was the only group that showed an increase on a HFD. Whether these trends will remain when the sample numbers are increased remains to be determined. The current sample numbers are too small to make any strong conclusions.

Remodeling of bone is the natural process where bone tissue is removed and laid down. Osteoblasts are responsible for ossification or bone growth. Resorption is the process where osteoclasts remove bone. It is possible that the remodeling found in the preliminary data might be the reason for the decrease in AGEs. We expected more AGEs in the HFD group. Instead we see opposite trends. The polar moment of area suggested some remodeling in HFD groups, probably in an attempt to make up for weaker material. Therefore, it could be that AGE formation would change with time, but remodeling is happening at a much faster rate with HFD groups that the AGEs don't have time to form and crosslink collagen. The saline injected also did not show any trends that we would have predicted. They should have been the same as

WT offspring.

Studies have demonstrated a relationship between leptin and bone, however the mechanism of leptin's effect on bone remains unclear (9). Leptin seems to stimulate an up-regulation of osteoblasts (cells that synthesize bone), and is associated with loss of trabecular bone (spongy bone). Ultimately, more data will need to be collected due to only an $n = 3$. We will continue to evaluate additional samples to determine if maternal leptin concentrations differentially affect adult male offspring bone integrity.

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ACKNOWLEDGEMENTS

Anthony wishes to recognize his co-authors on this paper: Arin Kettle-Oestreich, BS; Kathleen Pennington, PhD; Kelly E. Pollock, PhD; Omonseigho Esangbedo, BS; Laura Schulz, PhD; and his mentor Charlotte L. Phillips, PhD.

Why Fees Signal Performance: An Analysis of ETFs

J. MONROE GAMBLE IV

Shastri Sandy, PhD, Mentor
Department of Fiance



Monroe Gamble is a native of Kansas City and is majoring in Economics with minors in Mathematics and Business. In addition to being a recipient of the Fortnightly Scholarship, he is also a Vasey Academy Scholar and has served on the Arts and Science Student Council. Monroe is a member of Omicron Delta Epsilon, an Economics Honors Fraternity, and a member of the Economics Undergraduate Student Association.

This summer, Monroe conducted research in Econometrics at Michigan State University.

Introduction

Innovations in financial products have shaped and reshaped the effectiveness in which we invest. Exchange Traded Funds (ETFs) are no exception. Their proliferation has brought diversification, top tier management, and complex investment strategies to the retail investor (Agapova 2011). No longer do mutual funds have a stronghold on the market. From 2007 through 2013, index based equity ETFs have attracted roughly twice the flows of index domestic equity mutual funds since 2007 (ICI 2014). Investment decisions that once required a team of dedicated money managers can now be made with a few simple clicks of a mouse. Diversified asset classes in financials, consumer staples or via broad market indices are accessible to ordinary people without the need of a financial manager. ETFs compete with mutual funds for investor money and are generally perceived to have sweeping benefits, such as liquidity and tax efficiencies (Figure 1).

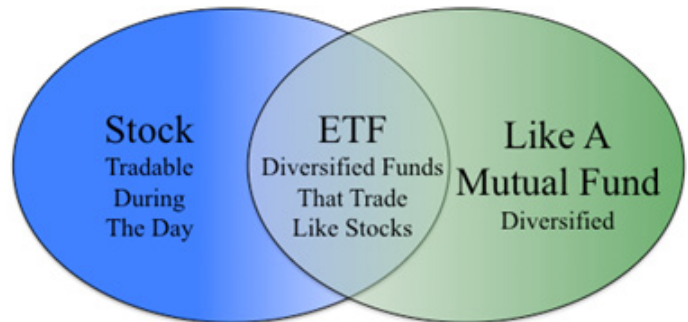


Figure 1. ETFs offer the liquidity of a stock and the diversification of a mutual fund

Research examining the efficiencies of ETFs exists (see Guedj and Huang (2009), Porterba and Shoven (2002)), but there is little study into the confluence of fee structures underpinning these investments and fund performance. With investment complexity comes the need for prudent analysis to uncover not only the benefits but also the hidden costs to investors. Are ETFs better than mutual funds along characteristics such as fee and tax structures or performance as measured by long term returns on investment? Our study addresses this question.

Market liquidity is associated with higher costs. Brokerage fees quickly eat away at returns. Mutual funds, despite carrying minimum balance requirements and withdrawal restrictions, spare investors some of the brokerage costs of ETF investing. We examine the net affects these costs have on the real return of an ETF investment. To control for survivorship bias, delisted and closed funds are included in our analysis.

For mutual funds, a wealth of research examining how management and fees affect value exists. There has been no such study on ETFs to date. Our results can be used by financial planners, regulators, and individual and institutional investors to increase portfolio profitability for both retirement planning and capital gains. Investors, given an easy to implement investment technique with significant returns, can regain control of their savings. Due to an overload of information and fear of making incorrect retirement investments, Americans frequently turn to professionals for advice. Commissions, kickbacks, and fees drawn from investor accounts create conflicts of interests. It is common practice for mutual fund providers to compensate brokers for attracting investors. Incentivized brokers may steer clients' savings into funds with higher fees and lower returns or suggest inappropriate rollovers out of low cost retirement plans to generate commissions. The White House Council of Economic Advisers (CEA) estimates \$17 billion of losses every year to working and middle class families due to poor investment advice (CEA 2015).

President Barack Obama and the Department of Labor will introduce reforms requiring financial advisors to put the client's best interests first. The White House aims to propose legislation to Congress by the end of the year combatting the principal-agent problems that exist between advisors and their clients. Brokers and advisors will have to clearly state their roles. Brokers will not be able to give financial advice without full disclosure. Full disclosure will ensure a clear separation of financial planner and broker roles. Our research complements these reforms. By exploring ETFs, we provide alternatives to mutual fund shares purchased through intermediaries. Investors can purchase ETFs directly, thereby avoiding fees charged by traditional mutual funds. These fees ultimately lower returns.

This reduction in fees is important because investing is an exponential process. Small improvements in earnings can lead to large gains, while hidden costs hinder the growth of nest eggs or maturity dates. Over 35 years, one percentage point of lower returns could reduce savings by more than 25%. Instead of a \$10,000 retirement investment growing to more than \$38,000 after adjusting for inflation, it would be just over \$27,500 (Whitehouse.gov 2015). Our research will prove beneficial to those investing in non-tax deferred accounts. In tax deferred retirement accounts, investments accrue tax free and withdrawals are treated as ordinary income. With Roth IRAs, taxes are paid up front with no tax on withdrawals in retirement; therefore, benefits such as tax structures are rendered nonessential. ETFs offer the advantage of liquidity and tax savings in certain cases. For example, a mutual fund must pay capital gains taxes on earnings, which is then compounded by a second tax on the investor. ETFs reinvest dividend payments or distribute them directly to shareholders, thus sparing this taxation expense.

Our paper contributes to the literature on ETFs and mutual funds as investment vehicles. Guedj and Haung (2009) investigate whether an ETF is a more efficient indexing vehicle than

an open ended mutual fund (OEF). Examining organizational structure via an equilibrium model, Guedj and Haung show that OEFs are beneficial to risk adverse investors due to partial insurance against liquidity shocks embedded in the fund's structure. They also find that OEF structures create moral hazard problems inducing excessive trading. Overall, they find that transaction costs to all investors are the same in OEFs and ETFs, though the allocations of these costs differ. Guedj and Haung conclude that investors with similar liquidity needs should be indifferent between the two fund types.

Poterba and Shoven (2002) examine the perception of ETFs as tax efficient alternatives comparing the pre-tax and post-tax returns of the largest ETF, the SPDR S&P 500 trust (SPY), with the returns of the largest equity index fund, the Vanguard 500 Index Fund. They find that between 1994 and 2000, the tax returns of the two funds are very similar. Poterba and Shoven do not examine other ETF/mutual fund alternatives. This is of concern because assets held by SPY account for less than 8.7% of the passive ETF marketplace. The timing of Poterba and Shoven's study precludes a considerable increase in ETF offerings. We include in our study a representative sampling of funds offering diverse strategies, objectives and goals.

Poterba and Shoven have found that ETFs may be more attractive for equity investments outside of tax deferred accounts than IRAs or 401(k)s due to their low rate of taxable distributions and liquidity. Conversely, retirement account investors may find traditional equity mutual funds more attractive due to their unique tax attributes. Poterba and Shoven do not go beyond SPY in their analysis of ETFs, raising the issue of sample size. Our study builds on their examination of after tax returns encompassing a larger body of ETFs and traditional funds. Poterba and Shoven account for two passive funds to the exclusion of the broader ETF and conventional fund market, which includes both active and passive strategies. Due to the timing, their study excludes innovations in the ETF and mutual fund market. In 2001, there were 96 exchange traded funds, a far cry from the number available in today's marketplace.

Proactive in approach, this study will promote long term political and investment policies. Fortuitously addressing retirement savings, our strategies can counterbalance future uncertainties of social programs, such as social security, which are increasingly under the pressure of ballooning deficits. State pension fund managers will also find this work beneficial as they may spare many unnecessary search costs and expenses charged by brokers and hedge funds. Society's capitalized cost of price discovery is at least 10% of the current market cap. It has been estimated that individual returns would be increased by 67 basis points if every investor switched to a passive market portfolio (French 2008).

Chung et al (2012) study the relationship between hedge fund manager compensation and ability, determining managers received compensation in relation to their ability. An explicit pay structure is coupled with an implicit measurement

to determine management compensation. A manager's ability to generate future cash flows is indicative of the manager's current ability. Therefore, managers who are able to generate more cash flows will receive higher levels of compensation because these managers will earn fees on larger funds subsequently. Because there is a link between performance and compensation, we predict higher mutual fund fees will correlate to increasing levels of fund performance as fees are paid to managers by willing investors eager to better compensate high caliber managers in return for higher returns. Work on hedge fund performance and compensation has been performed by Holmstrom (1999), Berk and Green (2002), and Lim, Sensoy, and Weisbach (2013).

We turn our attention here to mutual funds management, demonstrating that at times pay does influence performance, though not always in a predictable manner. Figure 2 displays preliminary findings of the relationship between expense ratio and performance. Sorting mutual funds and ETFs into decile groups by increasing expense we demonstrate two trends. As an ETF's expense ratio increases its performance decreases. Mutual funds behave diametrically, having a positive correlation between fees and performance (Figure 2a). Mutual fund performance begins to level off at the fifth decile. This is attributed to rising costs that are increasingly difficult for funds to outperform. We highlight the value added by better compensated mutual fund managers while singling out over compensation for overwhelmingly bad results, particularly the top three deciles of high cost active funds. We hypothesize that higher fees are associated with more actively managed ETFs and we find high cost ETFs show underwhelming performance, suggesting higher returns come from low cost passive alternatives.

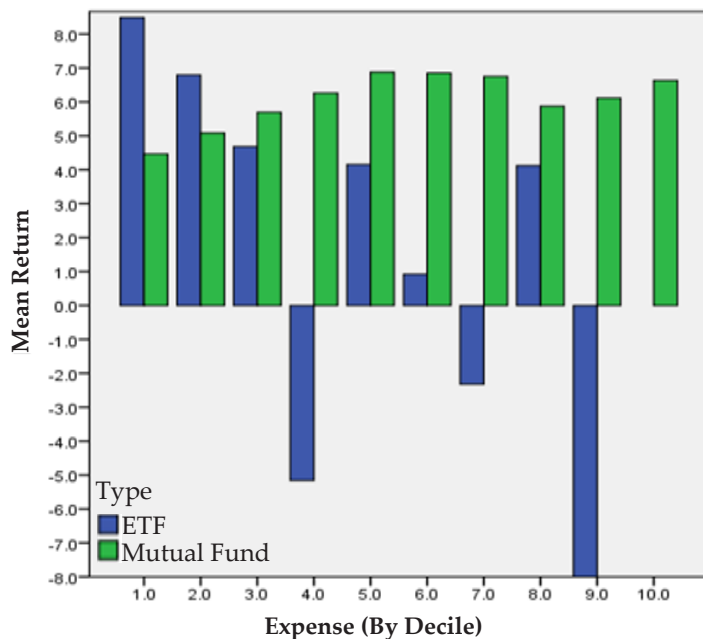


Figure 2. Expense Ratio on Fund Performance

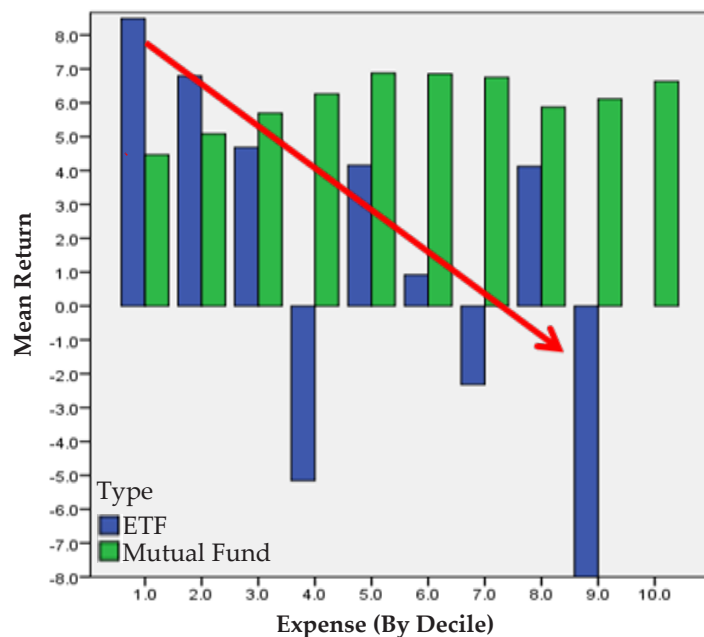


Figure 2a. Expense Ratio on Fund Performance

ETFs and mutual funds are non-exclusive (Agapova 2011). In our analysis we see fierce competition in the industry with mutual fund fees steadily declining since 2003 (Figure 3). Mutual funds emulating low cost indices have become increasingly common. We predict ultimately due to competition within the industry that over time mutual fund and ETF fee structures will be driven to further convergence.

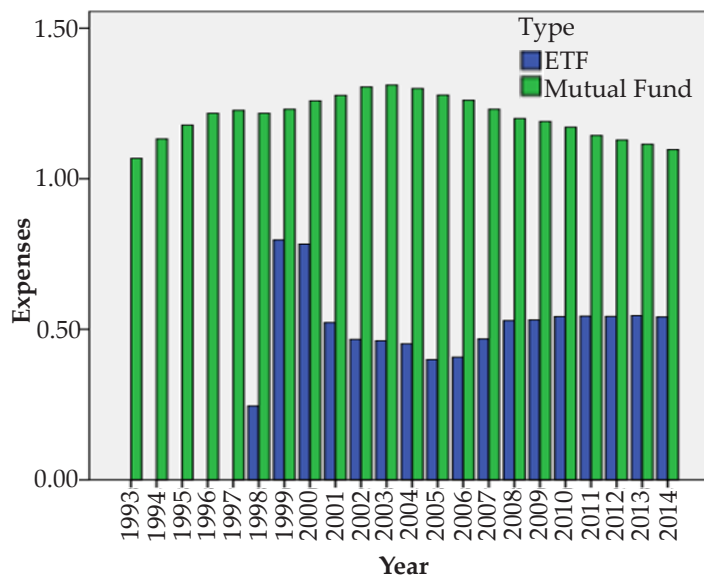


Figure 3. Expense Ratio Over Time

Data and Variable Definitions.

Fund data is provided by the Center for Research in Security Prices (CRSP). The data spans 22 years, 1993 to 2014. Fund performance is measured by dollar return per share. CRSP began tracking daily funds returns on September 1, 1998. For periods prior, we track funds monthly, measuring fund

performance by total return per share as of month end. We discuss the calculation of total return later in this section.

Factors such as tax and management expense affect investor per share return or capital gain. For consistency we focus on long term capital gains, which are classified as an investment of one year or more. In the United States (US) capital gains are taxed at different rates dependent on income and term length. Short term investments, held for a year or less, are taxed as ordinary income, while a long term tax rate of 0% is given to investors in 10% to 15% tax brackets; 15% tax to investors in the 25% to 35% tax brackets; and 20% in the 39.6% bracket. Even so, these taxes can be avoided altogether or drastically reduced. Individual Retirement Accounts (IRAs) and defined contribution plans called 401(k)s are common tax deferred investments. In a tax deferred IRA or 401(k), federal and state income taxes are deferred until capital gains are withdrawn and treated as ordinary income in retirement. A Roth IRA taxes initial contributions as income. Once invested these accounts grow tax free with tax free withdrawals in retirement (ICI 2014). Both public and private employers generally offer these plans to employees. Most employers match employee contributions anywhere from 0% to 100% after an initial vesting period.

The above tax plans consist of a large segment of the mutual fund market. Fees and expenses vary by fund. A fund with high costs may perform better than a low cost fund and still generate a smaller return. Small differences in fees translate into large differences in returns over time. Fee tables can be found in a fund's prospectus, which is an important document detailing a fund's investment objectives, risk, fees, expenses and other pertinent information.

The fees we focus on in our analysis are "Annual Fund Operating Expense". As defined by the Securities and Exchange Commission (SEC) this section lists management fees, distribution and/or service (12b-1) fees, other expenses and total annual fund operating expenses. Expenses under the heading "Shareholder Fees" are excluded from a fund's expense ratio. These fees are categorized as sales loads, redemption, purchase, exchange and account fees. Fees vary by fund. The SEC does not impose specific limits on fees that a mutual fund may charge. The SEC does limit redemption fees to 2% in most situations; however, the Financial Industry Regulatory Authority (FINRA) is mostly in charge of imposing limits on mutual fund fees (SEC 2015).

Turnover is a proxy for management expense located within "Annual Fund Operating Expense". Turnover tracks the amount of trades made by a fund. The more trades, the higher the expense to the investor as brokerage fees and commissions must be paid to intermediaries. Portfolio turnover is calculated per period by deducting newly purchased securities by the amount of securities sold and dividing this number by the fund's net asset value (NAV).

$$\text{Turnover} = \frac{\text{Newly Purchase Securities} - \text{Securities Sold}}{\text{Net Asset Value}}$$

Actively managed funds, mutual and ETF, tend to incur more of these expenses as managers trade in and out of positions as the market fluctuates. Passive funds are designed to do the opposite, minimizing trading cost through strategies such as indexing (Stealthy 2015). The minimization of turnover helps lead to lower expense ratios and other expenses. In our analysis we examine whether a correlation exists between turnover and returns.

The contribution of this research is the treatment of the key explanatory variable, management expense. Previous research has focused on tax and investment strategy (Poterba & Shoven 2002). We treat a fund's underlying assets or investment strategy as given. Instead, we focus on singling out the relationship between high fees and performance, high fees being an indicator of fund success measured using the dollar percentage gain per share. High fees indicate success because an underperforming fund that charges high fees will have negative cash flows. To attract investment, funds must appeal to investors charging a price that the market will bear. Underperforming funds must lower fees or become insolvent while outperforming funds will continue to operate compensated by the market accordingly. By breaking down the relationship between performance and management expense we have the opportunity to discover a pattern of successful funds, and demonstrate we can do this independent of the fund portfolio's underlying assets. Analysts typically spend a lot of time and resources investigating these properties. We streamline this information search by basing evaluations solely on a fund's expense ratio and the performance it predicates.

ETFs reflect all management cost in the expense ratio and are not subject to front or back end loads. Because ETFs are traded on exchanges, in most cases, to acquire these assets, investors must go through a stockbroker. Brokerage fees are classified as transaction costs and are excluded from our analysis. Long term, these fees are marginal and have no relationship to ETF performance.

We conduct a statistical analysis. Ordinary least squares (OLS) regression determines the relationship between performance and fees. We use summary statistics to better understand the trends in mutual funds and ETFs. Daily and monthly returns data are invariable measures of performance allowing us to generalize relationships between funds.

Analysis

The dependent variable in our model is return. The independent variable is management expense, and fund controls. Daily and monthly return values are calculated as a change in Net Asset Value (NAV) including reinvested dividends. NAVs are net of all management expense and 12b-1 fees. Front and rear load fees are excluded. Each day a total adjustment factor

is calculated by CRSP. The adjustment factor is given a value of one for each day and is subsequently modified depending on the types of dividends found for the fund that day. Adjustment factors include distributions, reinvestment and stock splits. We provide the daily adjustment factor calculation as specified by the CRSP Survivor-Bias-Free US Mutual Fund Guide (CRSP 2015). The total return per share is calculated using month end valuations.

We began estimating the relationship between these variables through the following model:

Relationship Between Performance and Fees

- (1)
$$ETF\ Return_{i,t} = \alpha + \beta_1 Total\ Fund\ Fees_{i,t} + \beta_2 Fund\ Controls_t + \beta_3 Time\ Control_t + \varepsilon_{i,t}$$
- (2)
$$Mutual\ Fund\ Return_{i,t} = \alpha + \beta_1 12b - 1\ Fees + \beta_2 Management\ Fees_{i,t} + \beta_3 Fund\ Controls_t + \beta_3 Time\ Control + \varepsilon_{i,t}$$
- (3)
$$Time\ Trend - Period\ Dummy\ 1 = early\ 0 = late$$

$$ETF\ Return_{i,t} = \alpha + \beta_1 Total\ Fund\ Fees_{i,t} + \beta_2 Period\ Dummy + 1 + \beta_3 Fees_{i,t} * Dummy_{1,0} + \varepsilon_{i,t}$$
- (4)
$$Mutual\ Fund\ Return_{i,t} = \alpha + \beta_1 12b - 1\ Fees + \beta_2 Management\ Fees_{i,t} + \beta_3 Period\ Dummy + 1 + \beta_4 12b - 1\ Fees_{i,t} * Dummy_{1,0} + \beta_5 Management\ Fees_{i,t} * Dummy_{1,0} + Controls_{i,t} + \varepsilon_{i,t}$$

We use these equations to evaluate the relationship between performance and fees. In Equation 1 we focus on the relationship between ETF returns and performance. Equation 2 evaluates the relationship between performance and fees for mutual funds, but is inclusive of 12-b1 fees, year-end expense ratio and management fee to determine fund expense. Equations 3 & 4 respectively provide a temporal component allowing us to evaluate the relationship between performance and expense when influenced by the timing of when fees are accrued. Regression analysis (ordinary least of squares method) was used to assess the relationship among independent and dependent variables.

Results

Starting with 5,270,867 observations, spanning 1993 to 2014, we perform transformations of 12 variables. In 1998, CRSP began reporting daily valuations data. CRSP's change coincides with the earliest observations retained in our data set. We find that our regression analysis is naturally bound by the year, covering 1998 to 2014. After transforming our data we trim the top and bottom 1% of monthly returns to preclude our results being driven by outliers. Our final data set contains 372,206 viable observations controlled for survivorship bias. Clustering by year we organize our data into 316,474 observations that we sort by type. There are 308,711 mutual fund observations and 7,763 ETF observations. Reductions in observation data are due to our controls over independent variables in the regressions.

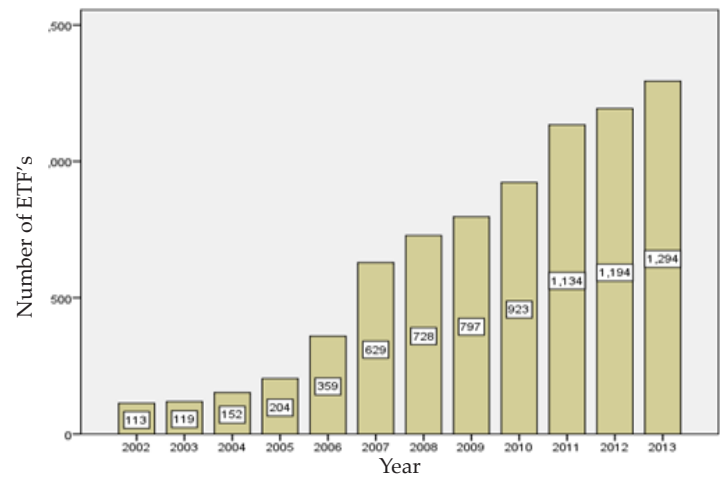


Figure 4. ETFs Growth Over Time (2002-2013)

Figure 4 shows exponential ETF growth over time. From 2002 to 2013 we see a 1,045% increase in the number of existing ETFs. As of year-end 2014 there were 1,411 actively and passively managed ETFs in the United States. ETFs held \$1.974 trillion in net assets accounting for 13% of total net assets managed by all fund categories. ETFs have experienced rapid growth. From year end 2005 to year end 2014, ETFs have issued \$1.4 trillion in new shares (ICI 2014). We provide evidence of increased competition posed on mutual funds by ETFs (Figure 2).

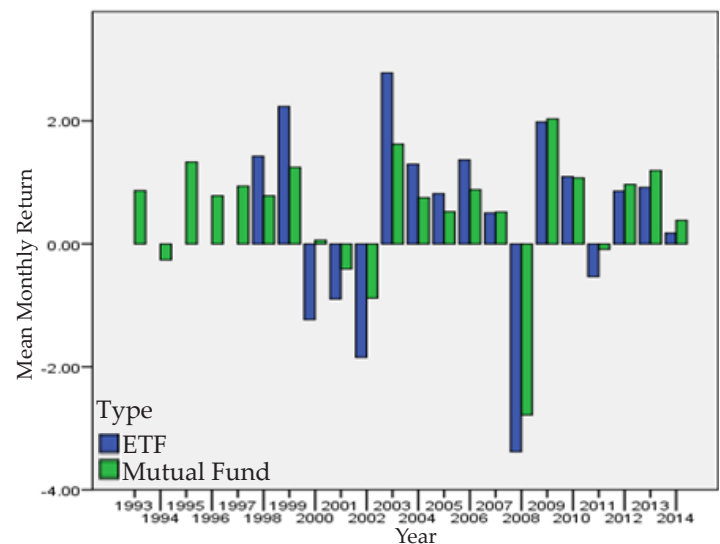


Figure 5. Monthly Return by Type and Year

On average ETFs outperform mutual funds, though both ETFs and mutual funds experience market shocks (Figure 5). ETFs are less equipped to handle these shocks. Having a predetermined strategy, passive ETFs do not adjust in bear markets. During these periods mutual funds show less net outflows.

Table 1. Regression Analysis

| Fund Type | Observations | Expense | Coefficient | Standard Error | t | P > t | 95% Confidence Interval |
|-------------|--------------|-----------------|-------------|----------------|-------|--------|-------------------------|
| Mutual Fund | 308711 | Total Fund Fees | -0.0001101 | 0.0003182 | -0.35 | 0.734 | -0.0007848 |
| Mutual Fund | 308711 | Net Asset Value | 0.0000916 | 0.0000415 | 2.21 | 0.042* | 3.59E-06 |
| Mutual Fund | 308711 | Expense Ratio | 0.0534216 | 0.1399645 | 0.38 | 0.708 | -0.2432898 |
| Mutual Fund | 308711 | Expense Ratio | -0.0001997 | 0.0002201 | -0.91 | 0.378 | -0.0006663 |
| ETF | 7763 | Management Fee | 0.0000191 | 0.0010863 | 0.02 | 0.986 | -0.0022962 |
| ETF | 7763 | Total Fund Fees | 0.0001067 | 0.0000491 | 2.18 | 0.046* | 2.17E-06 |
| ETF | 7763 | Net Asset Value | -0.9674918 | 0.2786282 | -3.47 | 0.003* | -1.561374 |
| ETF | 7763 | Management Fee | 0.0003676 | 0.0009375 | 0.39 | 0.7 | -0.0016306 |

Results of the regression analysis demonstrate both ETFs and mutual funds net asset values (NAV) were found to have a positive correlation with returns on a monthly basis. Funds present an increase in monthly returns by approximately .08 basis points (bps) for every additional 1% increase in NAV at a 5% significance level. ETFs exhibit a stronger relationship between NAV and monthly returns with a .11 bps increase for every 1% increase in NAV. Mutual fund monthly returns increase .004 bps per 1% increase in NAV. At these levels total fund fees were found to have no direct correlation to monthly return.

Only in the case of ETFs do expense ratios show a significant affect on returns ($p < .05$). There exists a negative relationship between expense ratios and monthly returns with regards to ETFs. A 1% increase in expense ratio translates to a 96.7 bps decrease in returns (5% significance level). This is a significant finding, as it suggests low cost ETFs yield higher returns by a near 1:1 ratio (Table 1).

Conclusion

Analysis of the data allows us to conclude two significant findings. First, across all fund types net asset value (NAV) has a positive correlation to returns. The more money under management the better the fund performs. Second, for ETFs high expense ratios should be avoided, as these funds will significantly underperform lower cost alternatives.

For ETFs, lower fees equate to better performance. Only recently have ETFs begun to utilize active strategies. Historically ETFs utilize passive strategies, thus higher expense ratios would simply be subtracted from its benchmark. The majority of ETFs have low expense ratios due to passive strategies. In analysis the low fee passive funds provided more returns than active strategies. ETF returns are higher, on average, than mutual funds. This suggests mutual fund managers may be better off utilizing passive strategies.

Figure 2a provides evidence, however, that for certain decile ranges management expense for mutual funds is indicative of performance. This may be explained by investor willingness to pay for skill. In an efficient market, higher skilled managers will make more than those with lesser skill. Berk and Green (2004) theorize that the assets under management (AUM) can

predict a mutual fund manager's skill. This is consistent with our regression analysis showing a positive correlation between NAV monthly return. Berk and Green's hypothesis can be modeled in an equation:

$$\text{Managerial Burden} = \text{Manager Compensation} \pm \text{Money Made (or taken) from investors (alpha)}$$

or

$$\text{Managerial Burden} = \text{Gross Alpha} \times \text{Assets Under Management}$$

Stated otherwise, investors are only willing to invest given a fund has a positive managerial burden greater than zero. Devoid of value added, investors would not invest in managers whose burden was less than zero (equates to negative return). Berk and Green do not examine ETFs.

The positive correlation expressed in Figure 2a suggests that up to a certain threshold active fund managers are worth their pay. Here, we must be careful to distinguish between active mutual funds and active ETFs. Active ETFs have higher expense ratios, which we have proven in our regression analysis to lead to decreased monthly returns. Employing Berk and Green's equation for mutual funds (not ETFs) we estimate that until the critical juncture where returns are nullified by managerial burden, active managers will be compensated based on skill. We also conclude that an active mutual fund manager's compensation is more representative of their skill level than an active ETF manager whose high expense ratio leads to decreased returns.

Since 2003 mutual fund expenses have declined (Figure 3). We believe this to be a direct effect of the introduction of ETFs into the marketplace. ETFs, on average, have much lower expenses than mutual funds. The downward trend of mutual funds is best explained by the exit of high cost funds from the market and a shift from high cost active mutual funds to passively managed mutual funds.

Due to the focus and attention on fee structure there is some delimitation to our results. Private fund data is inaccessible. Unlike some mutual funds and publicly traded funds, private funds are not required to release annual reports. Time series

limitations – ETFs are still relatively new vehicles, 1,375+ ETFs (only 152 in 2004), the first ETF SPY 1993. With the exponential growth in the industries, strategies, types, models, and structures, not all will have extensive histories. Sample size limitations – Limited time will constrain sample size. Survivorship is also always of concern with market research. Strong funds outlast weaker funds. We account for this by including both active and defunct funds.

More research is needed to determine performance under extreme market pressures. From our data we show a drastic divergence in performance between mutual funds and ETFs during market shocks and periods of recession. This is likely contributed to the ability of mutual funds, particularly actively managed funds, to change investment strategies whereas passive index funds follow persistent investment strategies despite market fluctuations. Turnover was shown to have a statistically insignificant effect on returns.

Our focus on expense ratios and the performance it predicates has shown high expense funds must yield higher returns to offset costs born to investors. Over the time period from 1998 to 2014 there has been increased correlation between ETF and mutual fund returns. It is inconclusive whether increased turnover causes poor performance. High trade volumes do not always equate to lower returns despite trading costs. On average ETFs outperform mutual funds, and management costs do provide information on performance. We expect the conclusions made in our analysis to hold true even as more data is made available over time and the ETF industry increases in age.

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The Profile of the Intercollegiate Black Athletic Director

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Introduction

Minorities, specifically African Americans are underrepresented in the majority of athletic management positions. The Institute for Diversity and Ethics in Sport (TIDES) conducts research regarding the racial and gender report card. In the report, TIDES examines the percentage of minorities that hold athletic positions such as management, directors, and coaches in college athletics, including student athletes in division 1, 2, and 3 sports. According to TIDES (2012), white males hold the majority of athletic director positions, ranging from 89 percent, 90.9 percent, and 95.9 percent, respectively.

What is an athletic director? An athletic director is a leader of the athletic department. He or she influences the student athletes, staff, and the university, while acting as a representation of said university, as well as having extraordinary supervisory responsibilities (Steitz, 1971). The athletic director may be regarded as one of the most important individuals in a college athletic department, if not the most important. The athletic director controls the methods and procedures by which an organization functions (Steitz, 1971), and it may be reasonable to call him or her a manager or executive in their duties. The athletic director path is categorized into five different paths. The paths are from former head coach, college athletics path (from a past athletic administration position and moving through the ranks), transferring from business outside of college athletics, the higher education path, and the non-collegiate sport industry path (Wong, 2014). Wong (2014) determined that athletic directors must be business oriented since intercollegiate athletics is a very large revenue generating business in itself. Fifty five percent of athletic directors are also former college athletes (Wong, 2014). Wong (2014) also determined that minorities are vastly underrepresented as athletic directors.

Literature Review

African Americans held 6.3, 4.9, and 3 percent of all athletic director positions across the three NCAA divisions. The gap between African Americans in these athletic administration positions and African American athletes at the collegiate level is not proportionate. African Americans are usually hired in Historically Black Colleges and Universities, and differ only slightly from athletic directors at predominantly white institu-

tions. Differences include athletic directors at HBCU's had more coaching or teaching responsibilities, compared to more fundraising responsibilities, a higher percentage had higher degrees such as masters and doctorate degrees, and were slightly younger by an average of 5 years (Quarterman, 1992). HBCU's were not included in the racial report card of division 1 athletic directors.

The lack of African Americans in the athletic director position indicates the need to increase diversity in collegiate athletic administration. Diversity is defined by Merriam Webster Dictionary (2010) as "the condition of being diverse: variety, especially in the inclusion of (diverse) people." Diversity has benefits for corporations and organizations, such as increased productivity and profitability, cultural awareness, greater equity, less stereotyping, and improved employee engagement. Corporations may gain a competitive edge by diversity of its group and employees (Distelhorst, 2007). With diversity becoming a value today, as well as the growth of a more diverse world in the future, it is important to expand the group of individuals who are earning these positions. It is important to recognize and establish the history of diversity and inclusion in sports.

It may be argued that the lag in African Americans' participation in the management and administrator roles in sports grew from their late acceptance into sports here in America. It is widely accepted that African Americans were not able to participate in the majority of sports in the United States (Shropshire, 1996). There were no African American athletic administrators at predominantly white colleges and universities until 1972 at Michigan State University (Underwood, 1984). Donald Spivey, the author of "The Black Athlete in Big Time Intercollegiate Sports, 1941-1968," (1983), points to a significant event in which African Americans began to enter intercollegiate athletics in larger numbers. In a time where most African Americans were not permitted to play, or where a number of universities prohibited interracial contests in sporting events, World War II would play a significant role in the introduction to the black student athlete. The war forced athletic programs to find athletes from new or previously untapped places. A number of student athletes, particularly white male student athletes, left their college athletic programs to fight in the war. During this time, a shift in thinking of interracial sports took place (Spivey, 1983).

Today, the question is why do we still see so few African Americans at the highest levels/power positions of sports? It has been argued that occupational segregation may take place in these intercollegiate athletic departments. Occupational segregation occurs when a certain group is put into a specific role or job, and is inconsistently placed there compared to other jobs or roles (Jonung, 1984). Research examining football media guides at 88 institutions has found that minorities were underrepresented at the athletic director, head coach, and full assistant coaching positions (Anderson, 1993). Head coaching and assistant coaching are important because former coaches may become candidates for athletic director positions. He

would determine that minorities could be underrepresented because they were institutionalized. Denise DeHass's research confirmed this when she determined that NCAA data revealed skewed racial minority groups being placed disproportionately in athletic administration jobs (DeHass, 2007).

Do college athletic departments simply not care about diversity? According to Morrison (1992), leaders who have experience in diversity are more likely to see the benefits, and believe that diverse management can lead to organizational change regarding diversity. Rynes and Rosen (1995), found that diversity in top management had no effect on the adoption of diversity management practices, but those who were studied and surveyed were between 80% to 100% white. Would the results be different if more diverse managers were surveyed? Shropshire (1996) mentioned the white old boys' network, where white males hire individuals who are like them. It is note worthy that African Americans hire more African Americans than whites do (Holzer, Raphael and Stoll, 2001). Therefore, if diversity increased in athletic administration, it would be possible that these minorities would look into hiring more minorities into the organizations. African Americans are also underrepresented in professional sport positions. Madden (2004) explains her last hire, first fire theory, in which African American coaches perform better than their white counterparts in their first year coaching, and also hold better records during their last year before being fired. In theory, African American men must be better than their white counterparts, and this may explain the perception of African American coaches being better coaches. It is important to note that diversity opens doors for new opportunities, and it is important to diversify these positions. Kenneth Shropshire, author of *In Black and White: Race and Sports in America*, explains the role of race in society and sport. Shropshire (1996) observes the white, old boys network, and explains that African American men may not be receiving these positions due to their lack of inclusion in the network of potential hires. Shropshire argues that it is the case that African Americans may be qualified, but will not get a chance to get the job due to the network created by past managers and owners (Shropshire, 1996).

Madden (2004) describes a "pipeline" of jobs that lead to NFL head coaching positions, illustrating how this currently works to maintain the system of white leadership and has been modified to put Blacks in head coaching positions. The pipeline is a system that places a person into a position that potentially leads to the next position or desired position (Madden, 2004). An example would be a college coach, which may be seen as a pipeline to the athletic director position, or an NFL assistant coaching position, which leads to a head coaching position. African Americans may be placed into these pipeline jobs to potentially reach the athletic director office.

The purpose of the research is to attempt to determine the factors that play in hiring African American athletic directors. How important are networks? How can African Americans become more prepared for these positions? Despite being represented by low numbers, it may be possible to determine the

similarities in each African American athletic director and the process of their hiring.

In my research I plan to determine the factors that play into the hiring of African American athletic directors. It is also important to view the path to the director's office as well. Since the minority is so underrepresented in this instance, I believe there has to be an explanation as to how these individuals have succeeded. Robert Putnam describes a social capital theory that may be useful in identifying how these athletic directors have been successful. Social Capital is the resources you gain in social relations (Putnam, 2000). One component of social capital is bridging, connecting with people who are outside of your normal class (Putnam, 2000). Bridging may explain how an individual can move through jobs, social classes, or move up an occupational ladder.

An individual may receive a job by their social network, however, this process is not just about whom you know, it's also about the process of "getting known" (Brooks, 2009). Dr. Scott Brooks (2009) claims that the process of getting known is crucial to getting a job or status. Brooks determines that networks and exposure are key components in receiving opportunities from others. In the research, the goal is to determine how these individual athletic directors were able to utilize this bridging theory to get where they are today, as well as how much the role of diversity has influenced their hiring process.

Methods

The profile is beneficial to understanding the hiring patterns and characteristics of African American athletic directors. Compared to the number of student athletes, the number of African American athletic directors is lower and not in proportion to non-African American athletic directors. The research may be beneficial in determining what path individuals who may be interested in the position should take.

The research helps determine why this group is successful, and the qualifications and characteristics this particular group exhibits. It may be argued that the contacts that hired these individuals would share sufficient information. Athletic directors were asked to participate and be studied due to their opinions and experiences that made them prime candidates for their position. The athletic directors could share information that the person(s) who hired them may not be aware of. The participants selected may have unique experiences that those who selected them may not have.

Twenty-two athletic directors from division 1, 2, and 3 athletic institutions were contacted for interviews, three being African American women. There were no responses from the female African American athletic directors. Six interviews were collected in total, resulting in a 27% response rate. Four of the six participants worked at division 1 athletic institutions, and two worked in division 2. The group of participants was identified primarily by the TIDES racial and

gender report card. Listed within the report card is the list of African American athletic directors at division 1 athletic institutions. The additional African American athletic directors were recommended by current athletic directors, creating a snowball sample. Last, internet searches were used to find additional participants. Once identified, the athletic directors were contacted via emails given in the athletic staff directory at each institution. The email asked for their participation in a study, in an attempt to create a profile of the African American athletic director. Those who agreed to participate were asked for their availability to do a phone interview due to travel and time constraints and one interview was conducted in person because the athletic director was local.

To create the current African American athletic director profile, eleven open-ended questions were asked in interviews to test old explanations, the supply of qualified Black talent, and my focus on social capital, bridging networks. The interviews ranged from 25-50 minutes in length. Questions covered topics such as: an overview of background, work and athletic experience, athletic administration experience, extracurricular experience (outside organization participation, professional development, other professional titles, etc), mentors and mentoring, and the role of race in their success.

The specific questions were:

- What is your background? Tell me a little about your self.
- What is the profile of an athletic director? Are there certain credentials, schooling, experience, knowledge skills, and abilities?
- How has your previous work experience prepared you for your position today? What was your 1st job?
- What is your story to getting into this career?
- Most people pick one moment, one event, contact, etc that was your "moment"? What made you your career progress to your position today, or what was the biggest step in your development?
- Can you re-create this process?
- Here are the current numbers for black administration: 7.7%, 3.4%, and 4.3% Athletic Director's across all 3 divisions, 8.2%, 6%, and 4.1% Associate/assistants AD's across all 3 divisions: do you think your process was special?
- How did you distinguish yourself across race from your peers?
- If you could do it all over, what would you use or do differently?
- Do you think mentorship is the key to advancing in this career? Or networking?
- What attributes do you contribute to your success?

Participants were asked to describe what networks, mentors, or opportunities acted as pipelines to their position today. By using the Bridging theory (Putnam, 2000), participants identified key moments, events, or people that helped progress their careers. Current African American athletic direc-

tors were able to describe how their experiences made them prime candidates to progress to the athletic director position. Without interviewing the participants, it would be difficult to pinpoint the details as to what major roles, factors, and experiences helped shape their careers. By using qualitative interviews, participants were encouraged to answer questions in detail, which would be more difficult in methods such as questionnaires or surveys. The research is dependent on personal accounts and experiences, which is difficult to acquire without gaining full detail. Qualitative interviews served as a direct, yet flexible approach to gather details for the research.

Biases that arose during the research included limited time for interviewing and an overemphasis on race. With having minimal contact with the participants, the interview data may be skewed or inaccurate due to changes of thought after the interview, dishonest answers, or lack of detail. Participants were granted full confidentiality of their identities and work location to ensure that personal information was not compromised. Each participant was urged to be completely honest in their answers, in an effort to collect the most accurate data. Each participant was notified that a follow-up study may be used in the event of new interview questions, or new data arose in the research.

Race was addressed in interview questions and was addressed by all participants. It may be the case that the emphasis on race potentially changed answers. In order to minimize biases, participants were not required to speak on race, and had the option to divert the question. Race was considered due to the lack of African Americans in athletic director positions. It is evident that there is a shortage and is not to be overlooked that race could potentially play a factor in acquiring the position.

The response of each individual is reviewed and compared to one another, to identify similarities and reoccurring themes in answers to interview questions. Re-occurring themes will be identified, and measured to determine how important it is to the success of the athletic director.

Findings

Following the interviews, each interview was carefully transcribed. During the transcription process, themes were identified for each interview. A theme was selected as data, or a result, when it was deemed significant or re-occurring by the researcher. With a total of 6 interviews, if a topic, phrase, definition, or specific term was identified 2 or more times, it was considered a theme.

The themes identified for the interviews were used to detail the important variables of the group. The themes attempt to describe the most important aspects of the career, success, and personal feelings of the group. The themes included: heavy mentoring and networking, extracurricular/non sport experi-

ence, former student athlete experience, earning an advanced degree, and the bridging theory including a past athletic director.

Mentoring is described as guiding, tutoring, or giving help and advice to a less experienced person (Merriam-Webster, 2015). Networking is described as the cultivation of productive relationships for employment or business. (Merriam-Webster, 2015). Interviewees linked the two together when explaining how they advanced to their current positions.

Networking and mentoring was the most mentioned theme. Participants noted that the networks and mentoring were ineffective without utilizing and establishing relationships. "Networking is maximizing and leveraging a relationship," said one participant. It was also evident that the African American athletic directors had a strong network with one another. When asked about other African American athletic directors, each participant was able to name multiple African American athletic directors, which they claimed as a friend, mentor, or colleague. One participant noted how he met other African American athletic directors. "I met a lot of the guys [black AD's] coming through the ranks, but it was also just reaching out to those guys. We're a tight-knit group so we look out for each other, I get together with them whenever I'm in their area."

Extracurricular/non-sport experience is described as work experience, involvement, or interests outside of their primary athletic duties. For example, one participant was involved with his local communities chamber of commerce. One individual participates heavily in his local big brothers and big sisters program. Another participant explained his involvement on committees with university presidents, chancellors, and provost, which helped him expand his network, which in turn lead to his eventual hiring as athletic director. Another participant previously worked in politics. One individual went on to claim that his non-athletic exposure helped him advance in the career more than anything else. Another participant noted that some of his most important contacts were provosts, chancellors, and presidents. "Get to know the people in student affairs, finance, administration, not just athletics. Build those relationships too." The participants noted that their work outside of athletics played a role in their success in the position.

Former Student athlete experience is determined by the individual's participation as a student athlete at the collegiate level. All participating members of the interviews were former student athletes. Each participant noted that their introduction to athletic administration occurred during their time as a student athlete.

Earning an advanced degree means to earn a degree after the baccalaureate degree. This can include Masters, PhD, J.D, etc. 5 of 6 participants held an advanced degree, and noted that it helped them to their position today. The most typical masters degrees came from business and sport management/

administration. Although these were the most common, one participant suggested that the type of degree did not play a large role, if you have the necessary experience in athletics.

In relation to the bridging theory, participants claimed that their athletic director at the previous work or undergraduate institution played an integral role in their athletic administration career. Participants noted that their past athletic helped them get into the profession, served as a mentor, or helped advance their career in some way.

Discussion

The research attempted to identify experiences of African American athletic directors at white majority institutions. Although the researcher focused on race, some participants noted that race did not make a big difference in their success. Many participants did note that their experiences were different from their white counterparts, and that as a minority you may get less of a chance, but ultimately, believed that it did not play a crucial role in their career. "If my race made a difference at a place where I didn't get the position, then I'll never know," noted one participant. All participants acknowledged the gap in minorities, specifically African Americans, in the athletic director position. It may be the case that there is a pipeline issue. In this case, the NCAA has a number of diversity initiatives aimed to increase minority representation in athletic administration. Future research may study and assess these programs, in order to assist with studies such as this one.

One participant expressed a different perspective than the rest of the group. The participant noted that although the number of African American athletic directors is slim, the time will come where the playing field will be even. "As a group, we are great at our institutions and we do a great job with our programs. The success at the top and our work will open doors for the future, and I argue that our status and numbers are strong instead of weak." This participant noted that the numbers may be paltry next to the number of student athletes, but the strength of the current African American athletic directors is more than strong enough.

In addition, the bridging theory was discussed as an important stepping-stone to their current progress. But, it was also noted that relationships and networks are not the only solution to the lack of minority athletic directors. This study was not conducted to find the solution for this problem, but to detail the perspective and experiences of these individuals and how they were successful.

Limitations in Scope

The research was not able to capture the perspectives of aspirants of the position, past athletic directors, or those who were unsuccessful in acquiring an athletic director position. The research is also limited to one group, but may be replicated or applied to another subgroup, such as women or other minority

athletic directors. In future research, the data may be compared to other groups, in order to interpret the experiences in different groups who hold the position.

In addition, only division 1 and division 2 athletic directors were interviewed, with 4 being from the division 1 ranks out of 14 possible participants. Division 3, the National Association of Intercollegiate Athletics (NAIA), National Junior College Athletic Association (NJCAA), international or high school athletic directors were not studied. Future research may be conducted of these groups. The research may continue until more data is collected from participants, and more data could be collected by increasing the time and questions of the interviews.

Conclusion

The research shows that although race plays a role in the experiences of these athletic directors, it does not hinder them from advancing in the career. The myth of the lack of talent in African Americans has been debunked in these particular cases. However, it should be noted that the bridge that these athletic directors used, were apart of the majority. They were white, old males. It could also be the case that race helped them get the job with the advent of diversity initiatives. For this reason, the next step in researching this group and topic is evaluating and implementing procedures to increase minority athletic administrators. The network that these participants used when they came into the industry was a majority old white male network.

As one athletic director noted, it could be the case that we are at the beginning stages of growth. It is important to note that with the cooperation of the athletic directors who participated, they are doing their part in bringing in the future athletic directors. Their experiences are unique, and the group was similar and connected with one another, as expected. It was surprising to see how much the participants used non-athletic experience and connections to advance. The current state of African American athletic directors is slim in numbers, but strong in power, and I am confident it will grow in both power and numbers in the future.

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The Effects of Relative Power on Sibling Relationship Quality

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Some close relationships are considered to be hierarchical in nature (e.g., parent-child), while others are considered to be more egalitarian (e.g., best friends). Even within relatively egalitarian relationships, however, relative power between the relationship partners is important to examine. In most research on close relationships, relative power is characterized by which relationship partner has more decision-making control, dominance, or sway in determining how the dyad interacts or the activities they participate in. The sibling relationship is unique in that it typically includes both nurturing and care-taking behaviors similar to parent-child relationships, as well as shared activities and support features similar to friends (Dunn, 2002). Thus, the sibling relationship is an interesting context in which to examine relative power dynamics, particularly given that power dynamics in the sibling relationships change over the course of development as the relationship moves from being more hierarchical to more egalitarian.

Because of the change in power dynamics over the course of development, many researchers have conducted studies that examine how age affects who has the most power in sibling dyads. Stoneman and Brody (1993) did a study on 134 Caucasian children aged 5-14 years old. In the study, siblings were videotaped sharing a snack and playing a game together. They found that power differences were more pronounced with younger-aged sibling dyads than older-aged sibling dyads. Similarly, Furman and Buhrmester (1990) assessed age differences in relative power using a large scale questionnaire study that examined children in grades 3, 6, 9, and 12. They found that sibling relationships were more egalitarian in the older age groups than the younger age groups. The sample of 363 predominantly Caucasian students of middle to upper-middle class families revealed that at each successive grade, younger siblings reported being dominated less by their older sibling. In another large-scale cross-sectional study of youth from grades 4, 7, 10, and college students, Furman and Buhrmester (1992) again examined youth self-reports of relative power with their siblings. They discovered that younger siblings perceived having more power in tenth grade and in college than in fourth or seventh grade. So, this again suggested that with age, sibling relationships increase in egalitarianism.

In addition to age-related changes in relative power, sibling dyad structural variables also appear to have an influence. One well-studied structural variable is birth order. Across both studies mentioned previously, Furman and Buhrmester (1990; 1992) found that older (earlier-born) siblings reported greater relative power in their sibling relationship than younger siblings (later-born). Conversely, findings by Skagerberg and Wright (2009) suggest that there is no significant difference in relative power due to birth order. However, Skagerberg and Wright's study only examined adult siblings, suggesting

that, similar to Furman and Buhrmester's assertion that sibling relationships become more egalitarian with age, by adulthood the relative power gap is non-existent. However, in Todd, Friedman, and Steele's (1993) study on adult siblings, birth order differences in power were, again, found to be significant. Their sample consisted of 145 women and 110 men of which 85 were first-borns and 170 were later-borns, with a mean age of almost 29 years. They found that first-born women in mixed gender sibling relationships perceived having more power than first born women in same gender sibling relationships. Women also perceived as having less power if they were the youngest in a mixed gender sibling relationship compared to if they were the youngest in a same gender sibling relationship.

Age difference between siblings has also been investigated as potentially influencing relative power dynamics. While Lecce, Pagrin, & Pinto (2009) found no significant age difference associations, Furman and Buhrmester (1992) found that age difference was significantly associated with relative power. Lecce et al.'s study was conducted in Italy on 48 children ages 6-11. Furman and Buhrmester had an older sample of siblings (4th grade-college), so age difference may become more important with older ages. Additionally, Lecce et al.'s sample size was relatively small and may not have had enough power to detect effects. The current study utilizes a larger sample (145 dyads; 209 adolescents) and an age range more similar to Furman and Buhrmester (1992).

Previous research has also found gender differences in relative power. Furman and Buhrmester (1992) found that girls perceived having less power in their sibling relationships than boys did. In Stoneman and Brody's (1993) study, only same gender dyads were investigated, and they found that older siblings' perception of power was predicted mostly by the age of the older sibling for both dyad types. As mentioned earlier, Todd et al. (1993) also supported the notion that older siblings in same gender dyads perceive their amount of power based on their age. However, older sisters perceive having significantly more power over their younger brothers than their younger sisters. Additionally, later-born sisters perceive having significantly less power over their older brothers than over their older sisters. This suggests that age and gender may interact with one another. The present study will add to existing literature by examining the perception of power within both same- and mixed-sex dyads.

While the developmental change of sibling power dynamics from hierarchical to more egalitarian has been relatively well-documented, what is less understood is the role this transition has in the quality of the sibling relationship. In Furman and Buhrmester's study on children in grades 3, 6, 9, and 12 several different relationship qualities were assessed (1990). As previously stated, Furman and Buhrmester found that sibling relationships become more egalitarian with age, and they attribute this to older siblings relinquishing some of their power and younger siblings gaining more of it. They also concluded that sibling relationships become less intense with age because of the older cohorts' reports of less companionship, intimacy, and affection than siblings in the younger cohorts. Thus, their findings suggest that at the same time that sibling relationships are becoming more egalitarian, they are also becoming less intense and less close. However, what is unknown is whether the level of relative power among siblings is associated with better or worse quality relationships and whether this association

becomes stronger with age. The present study aims to correct for this gap in our understanding.

THE PRESENT STUDY

The present study attempted to add to the literature on relative power in sibling relationships and how it affects relationship quality. First, we examined the role of age, age difference, and gender composition on relative power perceptions of adolescent siblings to confirm previous findings. Additionally, we examined how relative power affects relationship quality, and the moderating role of age in this association.

Based on findings by Furman and Buhrmester (1990, 1992) and Skagerberg and Wright (2009), which showed that older siblings are typically perceived as having more power in their sibling relationships, our first hypothesis was that older siblings would report having more power than younger siblings in terms of birth order. In addition, findings by Furman and Buhrmester (1992) showed that the greater the age gap in sibling relationships, the greater the power differential would be; therefore, our second hypothesis was that greater age differences would be associated with greater power differences than smaller age differences. Our third hypothesis was that younger aged cohorts would have greater relative power differences than older cohorts. This was based on Furman and Buhrmester's (1990) findings that sibling relationships become less intense with age. Based on Todd, Friedman, and Steele's findings (1993) which showed first born women exerting more power in their mixed gender dyads than in their same gender dyads, our fourth hypothesis was that older sister-younger brother dyads would have the most significant power differences while same gender dyads would have the least. The fifth and final hypothesis was that the association between relative power and relationship quality should be significant, and should get stronger with age. Previous research has not directly tested these associations, however, it is likely that the most developmentally appropriate trajectory (i.e., sibling relationships becoming more egalitarian with age), would be the best for relationship quality.

METHOD

Participants

The sample included 145 predominantly European American, middle-class, sibling dyads (total $n = 290$). Approximately 91.7% of families reported their ethnicity as European American, with other families identifying as African American (5.6%) or other ethnicities (2.8%). Birth parents of study siblings who were married made up 74.8% of the sample (14.7% single, divorced, or separated). Median family income ranged between \$70,000 and 84,000 (13.2%). Families were recruited for equal numbers in each sibling dyad group according to grade and the four gender compositions (sister-sister, brother-brother, older sister-younger brother, and older brother-younger sister). Of the first-borns, there were 81 female participants, and there were 71 female participants of the second-borns. First-borns averaged 14.97 years of age ($SD = 1.68$) and second-borns averaged 12.20 years ($SD = 1.92$). The mean age difference between siblings was 2.77 years.

Procedure

Participants were recruited from three junior high and three high schools within a small Midwestern city school district. Siblings were recruited by mailing letters to the families of 3,030 8th, 10th, or 12th grade students. Families who were interested in the study and met the inclusion criteria described in the letter (i.e., adolescents must be the first-born children in their families and have a second eldest sibling who was less than 5 years younger) were asked to contact researchers via phone or e-mail. Families who met study criteria and wanted to participate called or e-mailed the investigators to schedule a visit in the lab. One parent had to attend the lab visit with the two siblings (a second parent could participate from home with questionnaire measures) and were compensated for their participation. In the present study, however, only questionnaire responses from the two siblings were utilized. The lab visit lasted approximately 2 hours. As part of a larger study, families gave consent and assent, completed questionnaires, participated in a one-on-one interview with a trained investigator, and participated in two sibling videoed interactions.

Measures

Relative Power. Siblings completed the Network of Relationships Inventory (NRI) (Furman & Buhrmester, 1985) to assess their relative power (older $\alpha = .78$, younger $\alpha = .85$). Power was assessed by combining the relative power and the dominance subscales of the NRI as has been shown to be appropriate based on previous research (De Goede, Branje, Delsing, & Meeus, 2009). The power scale consists of six items.

Answers were given based on a 5-point Likert scale ranging from 1 (little or none) to 5 (the most). Low scores on the power scale show that adolescents do not see the person they are reporting about as more powerful. Examples of items are: "How much does this person end up being the one who makes the decisions for both of you?" and "How much does this person get you to do things his/her way?"

Relationship Quality. Siblings completed the NRI (Furman & Buhrmester, 1985) to assess their relationship positivity (older $\alpha = .95$, younger $\alpha = .95$) as well. Positivity was assessed using eight subscales: Companionship, Instrumental Help, Intimacy, Nurturance, Affection, Admiration, Reliable Alliance, and Support based on previous research (Adams & Laursen, 2007). The positivity scale consists of twenty-four items. Answers were given based on the same 5-point Likert scale used in the power assessment from 1 (little or none) to 5 (the most). Examples of items are: "How much do you play around and have fun with this person?" and "How much do you depend on this person for help, advice, or sympathy?"

RESULTS

Differences in Relative Power by Age and Sibling Constellation Variables

Differences in relative power were examined using a 2(Birth Order) X 4(Gender Composition) X 3(Age Cohort: youngest, middle, oldest) Repeated-Measures ANOVA with Age Difference as a covariate. See Table 1 for means and standard deviations. A significant Birth Order X Age Difference interaction was present,

Table 1. Means (SD) of Positivity and Relative Power by Cohort and Sibling Constellation Variables

| | | Positivity | | | Relative Power | | |
|--------------|--------------|-------------|-------------|--------------|----------------|-------------|-------------|
| | | Youngest | Middle | Oldest | Youngest | Middle | Oldest |
| First-borns | Males | 2.87 (0.67) | 3.07 (0.76) | 2.78 (0.76) | 2.15 (0.77) | 2.19 (0.67) | 2.06 (0.68) |
| | With Brother | 3.04 (0.73) | 3.19 (0.67) | 3.02 (0.72) | 2.28 (0.63) | 2.17 (0.55) | 2.23 (0.56) |
| | With Sister | 2.64 (0.55) | 2.82 (0.82) | 2.40 (0.68) | 1.98 (0.94) | 2.20 (0.81) | 1.79 (0.80) |
| | Females | 3.53 (0.73) | 3.25 (0.79) | 3.19 (0.98) | 2.27 (0.82) | 2.12 (0.69) | 1.91 (0.68) |
| | With Brother | 3.37 (0.81) | 2.98 (0.66) | 2.97 (0.80) | 2.17 (0.63) | 1.92 (0.27) | 1.71 (0.47) |
| | With Sister | 3.61 (0.69) | 3.47 (0.84) | 3.78 (1.25) | 2.32 (0.91) | 2.29 (0.88) | 2.43 (0.92) |
| | Total | 3.27 (0.77) | 3.15 (0.78) | 2.99 (0.89) | 2.22 (0.79) | 2.15 (0.68) | 1.98 (0.67) |
| | With Brother | 3.20 (0.77) | 3.08 (0.66) | 2.99 (0.750) | 2.23 (0.62) | 2.04 (0.44) | 1.94 (0.57) |
| | With Sister | 3.32 (0.78) | 3.20 (0.88) | 2.98 (1.15) | 2.22 (0.92) | 2.25 (0.84) | 2.06 (0.87) |
| Second-borns | Males | 2.87 (0.80) | 3.38 (0.87) | 3.14 (0.80) | 2.92 (0.97) | 2.82 (1.03) | 2.41 (0.72) |
| | With Brother | 2.92 (0.71) | 3.39 (0.88) | 3.21 (0.74) | 2.90 (1.07) | 2.64 (1.00) | 2.59 (0.72) |
| | With Sister | 2.82 (0.91) | 3.38 (0.91) | 3.09 (0.87) | 2.95 (0.89) | 3.01 (1.05) | 2.25 (0.71) |
| | Females | 3.48 (0.69) | 3.35 (0.68) | 2.97 (1.24) | 3.04 (0.88) | 2.74 (0.85) | 2.58 (0.91) |
| | With Brother | 3.27 (0.55) | 3.04 (0.77) | 2.49 (1.04) | 2.52 (0.79) | 2.60 (0.82) | 2.16 (0.80) |
| | With Sister | 3.57 (0.73) | 3.58 (0.52) | 3.65 (1.29) | 3.26 (0.84) | 2.83 (0.88) | 3.17 (0.75) |
| | Total | 3.22 (0.79) | 3.37 (0.77) | 3.09 (0.96) | 2.99 (0.91) | 2.78 (0.93) | 2.46 (0.78) |
| | With Brother | 3.07 (0.66) | 3.22 (0.83) | 2.93 (0.91) | 2.74 (0.96) | 2.62 (0.96) | 2.42 (0.76) |
| | With Sister | 3.32 (0.86) | 3.49 (0.71) | 3.24 (1.00) | 3.15 (0.86) | 2.91 (0.95) | 2.50 (0.82) |

$F(1,132) = 4.02, p < .05$. Post-hoc analyses revealed that the closer in age younger siblings are to their older sibling, the greater their relative power, ($t = 2.03, p < .05$). We also found a significant main effect of sibling gender composition, $F(3,132) = 4.89, p < .01$. Post-hoc analyses revealed that sister-sister dyads report having less relative power than mixed-sex dyads (with brother-brother dyads in the middle), $F(3,286) = 4.12, p < .01$.

Associations between Relative Power and Sibling Positivity

We used multilevel modeling to examine associations between relative power and sibling positivity. The first model examined only sibling constellation variables (gender, sibling gender, birth order) and the main effect of relative power. We also controlled for age difference between the siblings. See Table 2 for parameter estimates. There was a main effect of sex in which girls reported more positive relationships than boys. There was also a Sex X Sibling Sex interaction which indicated

that sister-sister dyads reported more positive relationships than all other dyads. Lastly, a main effect of power was found, and the direction of the effect was positive. When youth reported having greater power in their sibling relationship, they also reported having more positive relationships.

The final model included all possible 2-way interactions with relative power (models with 3- and 4-way interactions did not reveal any significant effects, thus those were dropped). This revealed a significant Age Cohort X Relative Power interaction. Simple slopes analyses revealed that in the youngest cohort, relative power was not significantly related to relationship positivity ($t = -.21, p = n.s.$). However, for adolescents in the middle ($t = 2.77, p < .01$) and oldest ($t = 3.16, p < .01$) cohorts, the less relative power youth reported, the more positively they rated the relationship.

DISCUSSION

As expected, structural variables such as age, age difference, birth order, and gender do affect relative power in sibling relationships. However, not all variables affected power in the way that previous research suggested that it would. In addition, our study adds to the literature on relative power in association with relationship quality. Not only do our findings support previous research which states that sibling relationships become more egalitarian as the siblings age, but we also have new implications for what this increasing egalitarianism means for the siblings.

Our results show that older siblings did report having more power than younger siblings, so our first hypothesis was supported. This is not surprising because previous research has found this as well (Furman & Buhrmester, 1990). Additionally, it also just seems natural for older siblings to have more power since they generally have more responsibilities regarding their younger siblings. This may not be the source of their power, but it certainly affects how much power they perceive having. Usually, older siblings are also physically bigger and stronger, more cognitively mature, and have more social experience. All of these attributes make the older sibling more equipped to exert power over their younger siblings.

Table 2. Standardized Parameter Estimates for Relative Power Predicting Sibling Positivity

| | Main Effects Model | | Full Model | |
|--|--------------------|-----------------|-------------|-----------------|
| | β | t -value | β | t -value |
| Intercept | -.03 | -.37 | .01 | .12 |
| Age Difference | .01 | .12 | .02 | .22 |
| Sex (0 female; 1 male) | -.21 | -3.72*** | -.21 | -3.66*** |
| Sibling Sex | -.08 | -1.43 | -.09 | -1.54 |
| Birth Order (0 younger; 1 older) | -.02 | -.39 | -.01 | -.33 |
| Cohort (-1 youngest, 0 middle, 1 oldest) | -.03 | -.44 | -.03 | -.36 |
| Sex* Sibling Sex | .32 | 3.08** | .22 | 3.01** |
| Sex* Birth Order | -.09 | -1.58 | -.08 | -1.28 |
| Sibling Sex * Birth Order | .06 | 1.02 | .07 | 1.14 |
| Sex* Sibling Sex * Birth Order | .03 | .87 | .02 | .48 |
| Sex * Cohort | .08 | 1.36 | .09 | 1.59 |
| Sibling Sex* Cohort | -.06 | -1.05 | -.04 | -.76 |
| Birth Order * Cohort | -.03 | -.79 | .02 | .48 |
| Sex * Sibling Sex * Cohort | .08 | 1.12 | .05 | .61 |
| Sex * Birth Order * Cohort | -.07 | -1.16 | -.07 | -1.26 |
| Sibling Sex * Birth Order * Cohort | .04 | .60 | .02 | .41 |
| Sex* Sibling Sex * Birth Order * Cohort | -.02 | -.42 | -.01 | -.33 |
| Sex * Sibling Sex * Birth Order * Cohort | -.02 | -.42 | -.01 | -.33 |
| Power | .11 | 2.14* | .13 | 2.49* |
| Sex * Power | | | .05 | 1.08 |
| Sibling Sex * Power | | | .06 | 1.12 |
| Birth Order * Power | | | .06 | 1.12 |
| Cohort * Power | | | .13 | 2.37** |

Note. + $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

Our second hypothesis was that greater age differences would be associated with greater power differences than smaller age difference, and this hypothesis was also supported. Again, these results were expected. Furman and Buhrmester's sample of siblings from 4th grade to college showed that age difference became more influential the further apart in age the siblings became (1992). Therefore, it would not make sense for siblings with greater age differences to have less power differences than those with smaller age differences. We also found that younger aged cohorts reported having greater relative power differences than older cohorts. This is consistent with our third hypothesis.

For our fourth hypothesis, we expected older sister-younger brother dyads to have the most significant power differences while same gender dyads will have the least significant power differences. We found that same gender dyads did have the least power differences, but older brother-younger sister dyads were shown to have the most significant power differences. So, our hypothesis was partially supported. This might be due to the fact that boys generally report having more power than girls (Furman & Buhrmester, 1992). In our society, we expect males to be more dominant than females, so it is not unusual for us to see this in sibling relationships as well.

Our fifth hypothesis was also partially supported in that the association between relative power and relationship quality was not significant for all cohorts as we had thought it would be. There was no association between power and positivity for the youngest cohort. Despite their greater power differences, younger aged cohorts did not report having less positive relationships. For the middle and oldest cohorts, power increasingly became more important in determining positivity amongst the siblings, so the association was only relevant for the middle and oldest cohorts. However, we did find that the association between relative power and relationship quality got stronger with age, which was consistent with our hypothesis. The oldest cohort reported having the strongest association between power and positivity, while the youngest cohort reported having no association between power and positivity and the middle cohort reported being in between the two.

Limitations of our study were that our sample of siblings came from predominantly Caucasian, upper-middle class, two-parent families. Future studies should test whether or not these findings are generalizable to other populations. It would be beneficial to know if these results applied to families with lower SES backgrounds, single parent, and ethnic minority families as well. Another limitation was that our data was only cross-sectional. Had our data been longitudinal, the direction of effects for power in relation to positivity would have been more clarified. Also, all of our measures were self-reported questionnaires. Perhaps observing actual interactions between siblings would give us new insight.

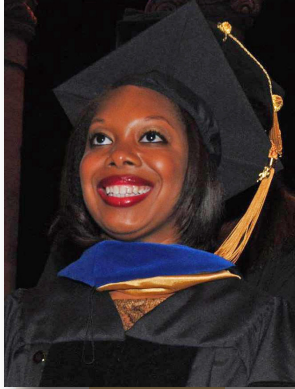
In conclusion, our study suggests that as older siblings age, they give up more power, and as younger siblings age, they gain more power. For sister-sister dyads, there is less power to give up or gain because there is not as much of a power differential early in adolescence as other sibling dyads. We also know that as sibling relationships become more egalitarian with age, they also become more positive. These results suggest that in order

for sibling relationships to become or remain positive in later adolescence or beyond, more egalitarian relationships must be achieved. This information can be useful for therapists focusing on power imbalances in the relationship to improve overall quality later in adolescence and emerging adulthood.

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Featured Scholar



Tracey L. Kenworthy, PhD
Doctorate in School Psychology
2007-2008 McNair Scholar

The MU McNair Scholars Program provided me with invaluable support, experiences, skills, and social connections that built the foundation for earning my doctorate in School Psychology. When I started the McNair Program, I originally aspired to obtain my doctorate in Developmental Psychology. After being immersed in the world of a development psychologist, I realized my passion was working with children in schools. My McNair mentor, Dr. Nicole Campione-Barr, connected me with Dr. Wendy Reinke, who later became my graduate advisor/mentor. As a junior, Dr. Reinke exposed me to research and practical experiences that enhanced my competence and skills related to the field school psychology. I realized school psychology was the best field for me, but I started questioning if I should obtain my master's or doctorate. However, one McNair staff member told me, "You are only a successful McNair Scholar if you obtain your doctorate." My drive to be successful in all endeavors solidified pursuing a PhD as the best fit for me. With my quest to obtain my doctorate, the McNair Scholars Program helped me be a stronger applicant for graduate school and fellowships. Being published in the *McNair Journal*, in particular, helped me stand out among other applicants.

As a doctoral student at the University of Missouri, I was able to easily build upon the skills that I gained as a McNair Scholar. My research experiences with McNair helped develop my analytical and problem solving skills, and oral and written communication skills. Because of my McNair training, I excelled at research tasks, such as developing research posters, presenting research, and scholarly writing. Research continues to be an area of strength. In January 2015, I won the Savin Scholar Award, which is awarded to a Devereux Institute of Clinical and Professional Training and Research Intern who proposes a research study that is regarded as "exemplary." In August 2015, I earned my Doctorate of Philosophy in School Psychology from the University of Missouri.

2014-2015 Research Topics

| Scholar | Major | Title | Mentor |
|--------------------------------------|-----------------------------------|---|------------------------------|
| Keisha Bailey | Psychology | "The Role of Parental Military Service on the Exhibition of Dominance and Nurturance in Sibling Relationships" | Nicole Campione-Barr |
| DaWon Baker | Parks, Recreation & Tourism | "The Profile of the Intercollegiate Black Athletic Director" | Scott Brooks |
| Zakary Beach | BioEngineering | "In Vitro Effects of an Epigallocatechin Gallate-Collagen Template on the Reduction of Inflammatory Agents" | Sheila Grant |
| Ariel Blaser | Linguistics and English | "Do you speak Butlereese? A Study of Small Town Speech in Missouri" | Matthew Gordon |
| Tiffany Carsten | Dietetics | "Effects of Sutherlandia Dietary Supplement on Cytokine IL-2 Levels" | Rainer Glaser & William Folk |
| Vaness Cox | Psychology and Sociology | "The Effects of Relative Power on Sibling Relationship Quality" | Nicole Campione-Barr |
| Ngan Do | Biological Sciences | "The Association Between HPA Dysregulation and the Risk Development of Type II Diabetes" | Mark Flinn |
| Marcus Edwards | Health Sciences | "A Case Study of Injury in a Division I Athlete Engaged in Revenue Generating Sports" | Kristin Flynn-Peters |
| Storm Ervin | Sociology | "Black Women Ex-Offenders in Columbia, MO" | Ibitola Pearce |
| Anastasia Harris | Health Sciences | "Working Mothers Perspectives of Employer Support on Breastfeeding in Rural Missouri" | Wilson Majee |
| Lauren Hollins | Biological Sciences | "Evaluating the Effects of Prescribed Fire on Diet Diversity of <i>Plethodon Serratus</i> " | Ray Semlitsch |
| Kristoffer McClellan | Journalism | "Perspectives of Mentoring: College Football Players and Their Decision to Leave Early for the National Football League" | Cynthia Frisby |
| J. Monroe Gamble IV | Economics | "Why Fees Signal Performance: An Analysis of ETFs" | Shastri Sandy |
| Anthony Onuzuruike | Chemistry and Biological Sciences | "The Development of a Biochemical Assay to Measure the Impact of Maternal Leptin Levels on Skeletal Collagen Content of Adult Male Offspring" | Charlotte Phillips |
| Tori Rockwell | Public Affairs | "Multi-Year Analysis of Evidence-Based Teen Pregnancy Program Outcomes in Missouri" | Colleen Heflin |
| Sorsha Smith | Classical Language & Linguistics | "Talking About Language" | David Schenker |
| Ronald Stuart | Geological Sciences | "Determining Pollutant Levels from Shelled Organisms in the Northern Adriatic Sea" | John Huntley |
| Angelique Taylor | Electrical & Computer Engineering | "Seabed Classification Using Local Binary Patterns" | Alina Zare |
| JaLisa Shaw (2014 Summer Scholar) | Nursing | "Frequently Reported Symptoms and Most Effective Management Techniques of Breast Cancer Survivors with Lymphedema" | Jane Armer |

2014-2015 McNair Scholars



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Second Row: Vaness Cox, Anastasia Harris, Keisha Bailey, Tori Rockwell, Lauren Hollins, Ariel Blaser, Tiffany Hawkins

Third Row: Dr. NaTashua Davis (Program Director), Angelique Taylor, Marcus Edwards, DeShaunya Ware, Storm Ervin, DaWon Baker

Back Row: J. Monroe Gamble IV, Anthony Onuzuruike, Darlene Dixon (Office Support Assistant IV), Jeremy Bloss (Student Support Specialist II)

