Greetings: On behalf of the McNair Scholars Program, I would like to welcome you to the 7th issue of You Belong.

Research suggests that undergraduates who participate in research are more likely to go on to graduate school than those who do not (Crowe & Brakke, 2008). Likewise, rigorous research internships are positively associated with graduate school placement, funding and completion (Nnadozie, Ishiyama, & Chon, 2001; Russell, Hancock, & McCullough, 2007).

The purpose of the McNair Scholars Program is to increase the attainment of Ph.D. degrees among students from underrepresented groups in higher education. This goal is accomplished by closely working with students as they complete their undergraduate requirements and encouraging scholars to pursue graduate degrees in their discipline.

This past year, we have been fortunate enough to experience increased faculty involvement from the STEM disciplines and significant support from Dr. Mary Beth Armstrong, Provost and Vice President for Academic Affairs.

Incorporating a research component along with academic rigor has enabled us to sharpen scholar’s critical thinking skills along with oral and written communication skills. Additionally, we are pleased to share this work and highlight dedicated faculty and institutional support that is committed to academic excellence, scholarship and collaboration.

It is our honor to share the labor of our most recent cohort.

Sincerely,

Qshequilla Parham Mitchell, PhD, MPH  Tonya Giddens, MSHI
Director, TRIO McNair Scholars Program  Project Coordinator, TRIO McNair Scholars Program

Due to the efforts of Julia Tutwiler who advocated for the technical training of girls, the University of Montevallo opened in October 1896 as the Alabama Girls' Industrial School (AGIS), a women-only technical school that also offered high school-level courses. AGIS became the Alabama Girls' Technical Institute in 1911, further adding "and College for Women" in 1919. The school gradually phased into being a traditional degree-granting institution, becoming Alabama College, State College for Women in 1923. The school's supporters lobbied the Alabama Legislature which passed a bill on January 15, 1956 that dropped the designation "State College for Women", effectively making the school coeducational.

The first men entered the school that same month. In 1965, the board of trustees authorized President D. P. Culp to sign the Certificates of Assurance of Compliance with the Civil Rights Act of 1964. In the fall of 1968, three African American women, Carolyn Buprop, Ruby Kennbrew, and Dorothy (Lilly) Turner, enrolled in the university. On September 1, 1969, Alabama College was renamed the University of Montevallo. Today, the University of Montevallo is the only public liberal arts college in Alabama and is a member of the prestigious Council of Public Liberal Arts Colleges (COPLAC).

Montevallo is located in the geographic center of the state of Alabama in an area rich with Civil War history. With slightly over 3,000 students, the university generates a significant economic impact on the surrounding communities in Shelby County. Many of the buildings on campus predate the founding of the college, including King House and Reynolds Hall. The King House is reserved for special guests of the campus, and Reynolds Hall is still used by the Theater Department and alumni relations. King House was reportedly the first home in Alabama to receive pane glass windows.

Montevallo's campus is considered an architectural jewel. Its appearance is more in line with private, elite institutions. The central part of campus is a National Historic District, listed on the National Register of Historic Places. The Olmsted Brothers’ firm, who also designed the grounds for the Biltmore House in North Carolina, designed the main portion of the campus. Frederick Law Olmsted designed Central Park in New York.
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The McNair Scholars Program staff plays a significant role in the production of this journal and the program’s operations. We appreciate their continued dedication and acknowledge their valuable contributions.

Tonya Giddens, MSHI Program Coordinator
Kendall Criswell, Program Assistant and Journal Editor

The McNair Research Journal embodies the proceedings of the Annual McNair Scholars Program Research Presentations. Many of these projects have been presented at national conferences in Niagara Falls, NY; Baltimore, MD; and Kansas City, MO.

Qshequilla Mitchell, Ph.D.
Project Director
TRIO McNair Scholars Program Director
The Federal TRIO Programs were established by Congress to provide educational assistance and opportunities for all Americans regardless of ethnic/racial backgrounds or economic status. TRIO programs reflect our country’s commitment to diversity and equality in education. These programs, funded by the Title IV Higher Education Act of 1965, generally serve first generation low-income students, students with disabilities and students from groups underrepresented in higher education.

ABOUT RONALD E. MCNAIR, PH.D.

Ronald Erwin McNair was born October 21, 1950 in Lake City, South Carolina. McNair’s thirst for scientific knowledge led him to a Bachelor of Science degree in Physics from North Carolina A&T State University, graduating magna cum laude. Earning a Ph.D. in Physics from Massachusetts Institute of Technology in 1976, he became a widely recognized expert in laser physics while working with the Hughes Research Laboratory.

Further distinguishing his career, he was chosen from a pool of ten thousand applicants for the NASA Space Shuttle Program. In 1986, Dr. McNair was a mission specialist aboard his second Challenger flight when the shuttle was tragically lost in an accident that claimed the lives of the entire crew. To honor the memory of Dr. McNair, Congress allocated funding for the Ronald E. McNair Postbaccalaureate Achievement Program.

The University of Montevallo TRIO McNair Scholars Program

The University of Montevallo is committed to the legacy and memory of Dr. Ronald E. McNair. Our scholars, representing a diverse background, look forward to continuing their educational endeavors in graduate and doctoral programs. The program facilitates educational and academic growth through research opportunities, faculty mentoring relationships, and related services. The scholars attend and present their research at national conferences and network with professionals in their fields of study.
The Forgotten Front: The Exclusion of African Americans during WWII in U.S. History

Textbooks

By: Kaylan Banks

Abstract

This research explores the lack of representation of the African American story, especially in terms of achievements and struggles during World War II, in high school U.S. History textbooks. Acknowledging the ideas and practices behind U.S. History textbooks presenting stories from a Eurocentric point of view, also known as the dominant narrative, it is important to further understand its consequences. Samuels & Samuels (2014) highlight that experiences and stories of marginalized groups are often missing, misrepresented, or relegated in the curriculum resulting in an imbalance where disproportionate attention is devoted to select demographics. At times, this can send a message that some groups are more valued than others throughout key historical events or time eras. There is a relatability factor when adolescents do not see themselves in the same mirror as those who are white. This research includes a textbook analysis: (1) examining the inclusive nature of African American’s achievements and struggles during World War II in U.S. History textbooks (2) exploring key historical events that should be included. Withholding the mass amount of knowledge, suggests that White people still want to control the dominant narrative. (Key Words: African American History, dominant narrative, exclusion, textbooks, World War II.)

Introduction

“I believe our education system as a whole has not integrated the histories of all people into our education system, just the Eurocentric view of itself, and the White-centered view of African
Americans, and even this is slim to nonexistent. What I find is that most people don’t know the fact they don’t know, because of the complete lack of information.”

(Takaki, 2014, p. 49).

Throughout the history of America, a systematic predominance for the ideal western civilization is controlled in the vantage point of “white people”. By “white people”, the alluded assumption is of anyone who looks white, but on historical accounts Americans who derived from England take the mantle. “The Master Narrative says that our country was settled by European immigrants, and that Americans are white” (Takaki, 2014, p. 6). To imply that African Americans are the only race of people that had suffered since arriving in the United States would be false. Asians, Irish, and Jewish immigrant descendants faced perjury, prejudice, racism, bias, and inequality across what Lee (2017) calls “Land of the Free”. She furthers with “Most students don’t, for example, learn about the laws that for years excluded Asians from immigrating to the U.S. They don’t read about the lynchings.” (2017, p. 2). Majority in major U.S. news networks, and U.S. History textbooks, lynchings are mostly associated with African Americans. This goes to show there was also a high level of hatred, bigotry, and racism amongst the Asian American that has seemed to be hidden in our history books.

In the United States education system, the perspective is from “White America” in our history books with the contributions through economic, social, and political power that has risen the United States to being one of the most formidable countries on the planet Earth. Whereas the lack and misrepresentation that African Americans and other races equal contributions that have led to the making of what America is today and is influential of how they view themselves. “Our students-Asian, Latino, African American, Native American, and, yes, white – stand to gain from a multicultural curriculum, particularly as the U.S. population becomes increasingly diverse.
Students of color are more engaged and earn better grades when they see themselves in their studies” (Lee, 2017, p. 1). Though we hear about Martin Luther King Jr., Cesar Chavez, Harriet Tubman, and Sojourner Truth in most U.S. history textbooks. In timeless files the forgotten heroes find refuge. That their great contributions have been made through a glimpse in U.S. history, Robert Smalls, Dalip Singh Saund, Mendez v. Westminster, and Claudette Colvin.

During the World War II era, millions of lives had perished, economies were devastated, and poverty continued to expand across the globe. In U.S. History textbooks, it glorified the battles that were lost and won, the technological advances, and the introduction of the baby boomers. However, key moments have been left out such as the Federal Council of Negro Affairs, conditions of internment camps in the U.S., along with Jim Crow laws being upheld as African American soldiers fought overseas, are just a few examples of how key historical events are absent from U.S. History textbooks. African Americans, along with Asian Americans, Latin Americans, and Native Americans contributions to American society are underrepresented, that the narrative is primarily coming from a Eurocentric point of view.

A perceived notion that Eurocentric views maybe everyone's viewpoint in America identity. Not only is it important to acknowledge and highlight Black history, but to believe that it is also American History. Racism is a key component in how others of different decent than “white people” are viewed, and it is ignored in the way that gets lost in the shadow of time. “It’s not only possible to teach a U.S. history course like this, it’s normal. In many schools, teaching American history often means ignoring racism.” (Collins, 2018, p. 2) “The absence of representation results in a teaching system that disqualifies or omits the black population history and culture.” (Collins, 2018, p. 3). An unknown past is equivalent to a blind man walking without a cane, a phrase that mirrors the popular saying if you don’t know your past, you don’t
know your future. American society predicated on the ideals of equality of all people, however, even though we share the same country, the social economic class, and how we are viewed are vastly unequal. “Socially, segregation labeled African Americans as less than human; the term “boy” itself, applied to the Scottsboro defendants even as they became elderly, implied that they were less than men.” (Loewen, 2016, p. 48). The lack of respect comes from the illusion that all men aren’t created equal, without the respect of seeing a man equally, racism will always plague us.

**Literature Review**

*A Non-Eurocentric Point of View in U.S. History*

Eurocentrism in sociology is defined as the assessment and evaluation of European and other societies from a decidedly European point of view. Commonly the Eurocentric point of view is present in high school U.S. History textbooks that tells the story of America through a lens that does not in a whole encompass the colors of American society. Pre-World War 2, in Shelby County high school textbooks reference African Americans beginning with the invasion of European colonies into Africa, then into the transatlantic slave trade through into the abolitionist movement into the Civil War. Though by examining history from a non-Eurocentric point of view the pendulum swings into a different narrative. Throughout the book, Woodson focused his writings on the problems facing African American education, with one being the lack of knowledge about Black history. Woodson believed that with increased knowledge about Black history one could eliminate racist thoughts and perceptions that many people (both White and Black) internalized against African Americans. (King, 2009).

Perhaps the most pervasive theme in our history is the domination of black America by white America. Race is the sharpest and deepest division in American life (Loewen, 1995). We
teach about the 13 colonies anyway; we should include information about the first hero of the American Revolution, a black man, Crispus Attucks. We teach about Ellis Island already we should incorporate the stories of the black immigrants who chose to come here. We teach about the Great Depression, but the photographs, songs and diary entries seldom include African Americans. And their absence reinforces the idea that white stories are the story. Every year schools, websites and publishers make choices about how to update this material anyway, and building a more complete vision of our history should be at the forefront of their priorities (Albu 2015).

_Exclusion and Inclusion in U.S. History textbooks_

There is a principal in place that African Americans aren’t not viewed equally as White people in U.S. History textbooks. The history of black people in American society, is underestimated and misrepresented, devaluing our contributions to America and a false illusion that the history of African Americans begins with slavery. For decades dating back to scholars such as W.E.B. Du Bois activist have called for schools to offer anti-racism of multicultural curriculum (Lee, 2017). Even in the U.S., pugilist and diggers cannot guarantee the position of their subject in their subject in the discourses of African American young people, indeed all American students, are given an impoverished curriculum in the field of history (Grant, 2011). There is a problem with the lack of inclusion of African Americans in U.S. History Textbooks, but along with Asian Americans, Jewish Americans, Latin Americans, and Native Americans. Not only is exclusion one of the substantive and intellectual foundations of Asian American studies and increasingly recognized as a fundamental aspect of U.S. immigration history (Lau, 2007).
In the book the miseducation of the Negro, Carter G. Woodson says “When you control a man’s thinking you do not have to worry about his actions. You do not have to tell him not to stand here or go yonder. He will find his ‘proper place’ and will stay in it. You do not need to send him to the back door. He will go without being told. In fact, if there is no back door, he will cut one for his special benefit. His education makes it necessary (Woodson, 1933). As another has well said, to handicap a student by teaching that his black face is a curse and that his struggle to change his condition is hopeless is the worst sort of lynching (Woodson, 1933). We need to broaden what is considered important to impart to our students so that the default history of America isn’t a white, male one – a view reflected in the racially-biased policing, violent hate crimes and the absurd resistance to permanently bringing down the Confederate flag, which all plays out beyond the classroom daily (Albu, 2015).

Systemic Racism in American Society

Conceptual systemic mindset is a physiological key into the insight that will display frontward into a person's thought process. Interest convergence theory means people of European descent will support racial justice only when they understand that there is something in it for them. Applicable during 2nd World War, African Americans weren’t allowed to take to the front lines out of fear of African American being portrayed as heroes. That prompted the Double Victory campaign that signified the battle of African Americans were fighting not only overseas in Europe and Asia, but the Homefront of America as well. When the United States entered WWII, African-Americans joined the fight to defeat fascism abroad. Meanwhile, the decades-long fight on the home front for equal access to employment, housing, education and voting rights continued (Delmont, 2017).
Being an American of dark complexion and some 26 years, these questions flash through my mind: ‘Should I sacrifice my life to live half American?’ ‘Will things be better for the next generation in the peace to follow?’ ‘Would it be demanding too much to demand full citizenship rights in exchange for the sacrifice of my life?’ ‘Is the kind of America I know worth defending?’ ‘Will America be a true and pure democracy after this war?’ ‘Will colored Americans suffer still the indignities that have been heaped upon them in the past?’ These and other questions need answering.” Then he proposed what he called “the double V V for a double victory … The V for victory sign is being displayed prominently in all so-called democratic countries which are fighting for victory over aggression, slavery, and tyranny. If this V sign means that to those now engaged in this great conflict, then let we colored Americans adopt the double V V for a double victory. The first V for victory over our enemies from without, the second V for victory for our enemies from within. For surely those who perpetuate these ugly prejudices here are seeking to destroy our democratic form of government just as surely as the Axis forces.” (Gates, 2019). Following the attack on Pearl Harbor, Japanese Americans were placed in internment camps and displaced from their homes. While being held in such camps, men and women volunteered to fight in the war. The American public and government largely regarded Japanese Americans as “enemy aliens” after Japan attacked Pearl Harbor. They feared that the Issei and Nisei would join forces with their country of origin to concoct more attacks against the United States (Nittle, 2018).
Methodology

The purpose of this research paper was to examine the exclusion of African Americans, as well as other minorities such as Latino Americans, Asian Americans, and Native Americans in current U.S. History Textbooks. Outlining the dominance of the euro-centric point of view that discusses the dominant narrative of a country that two-thirds of its citizens have roots from non-European countries. Spotlighting an issue with the current makeup of how things are perceived in our textbooks, the research paper was to bring notice to those who have also have findings to support the factual based evidence of the lack of minorities in U.S. History Textbooks, particularly during the World War 2 era.

For this research paper, it was presumed best to conduct a textual analysis because the time frame in examining the wide scale of history as well as the purpose of configuring the thoughts of others that have highlighted the topic. Three key things took place, the first of which was to analyze current U.S. History High school Textbooks, located in the Shelby County region, of Alabama. Grasping a better understanding of what the current age of students are learning in the classrooms today. Secondly, researching peer reviewed articles, from known researchers and professors who have published works on this topic of similar to it, such as Dr. LaGarret King, Dr. Henry Gates, Dr. Samuels, just to name a few. Lastly, analyzing specific relevant books that were key in exploring a particular time period, examining factual based evidence or a race of people. Analysis

“In omitting racism or treating it so poorly, history textbooks shirk a critical responsibility. Not all whites are or have been racist. Levels of racism have changed over time. If textbooks were to explain this, they would give students some perspective on what caused racism in the past, what perpetuates it today, and how it might be reduced in the future” (Loewen,
1995). Through the findings that what was conducted, commonality of a recurrence of issues constantly aroused that factor into the analysis. The main goal of the U.S. History Textbooks is to inform the readers on historical events on America History dating back to the 1400's. Harnessing off of the Eurocentric narrative that Christopher Columbus discovered the Americas, without detailing the historical data in its entirety. With the beginning of the downfall of the Native Americans, and slave trade amongst the Western Hemisphere. There is an objective tone to educate the reader on American history by looking at the U.S. History textbooks there is a dominant narrative controlled by a euro-centric point of view. Majority of the findings, resulted in the U.S. History Textbooks being through an euro-centric point of view, by withholding key facts from historical time periods that dissolves the contributions of minorities of different races, those that equally had a hand into the construction and strength of the American society we have today.

Lastly, the review is that current high school U.S. History textbooks used by the Shelby County Board of Education does not reflect the history of the United States of all races. By taking a small sample size of U.S. History books, from this particular region, that is very close proximity to key Civil Rights events. Shows that a particular narrative, still wants to be controlled by not including key events during the Civil Rights time period, other races contributions to American society, and the fight for equality of all who call themselves Americans.

**Implication for Further Research**

To have a dream, is to have a purpose, and to have a purpose is to have a mission. It is my mission to continue to bring light to this topic to further educate others on the lack of history in our public schools. Carrying the torch that others have held, to not let the light whisk away
into the night sky, but forever shine as a beacon of hope of change to come. The further building on my research would be to interview different individuals of minority backgrounds, from the ages of 14-24, primarily focusing on if there is any psychological damage by how they viewed themselves in current U.S. History Textbooks. Following, I would like to study if, white American’s have xenophobia of different races who come from different ethnic backgrounds, concentrating where that sense of feeling would originate. Also, talking to local congressional leaders and politicians if we could improve our textbooks to be more inclusive, and if so. Asking the necessary questions will there be funding allocated to update current textbooks. The purpose is to not only do the adequate research, but to also take action to be the change that needs to be sought after.

**Conclusion**

“What I find is that most people don’t know the fact that they don’t know, because of the complete lack of information.” (Takaki, 2014, pg. 4). It is not to downgrade a race, nor to uplift a race above another. Instead to highlight the contributions that all those who have come from a different ethnic background. To not only tell one side of the narrative, but to tell the stories of all in their entirety as the history that is took place, not how it may have been written. U.S. History Textbooks should encompass the history of all people, not only by controlling the dominant narrative alludes to a society that still doesn’t recognize or value the contributions that non-Europeans have made. It is not only important to acknowledge and highlight Black and minority history, but to believe that it is also American History. Racism is a key component in how others of different decent than “white people” are viewed, and it is ignored in the way that gets lost in the shadow of time. Americans need to grow and evolve that the past isn’t repeated again.
References


Psychological Resilience and Pain Tolerance: the Additional Benefit of Optimistic Outlook and Grit through Adversity

By: Ashley Buckingham

Abstract

This experiment analyzed the interconnected relationships between several positive psychological factors and their effects on cold-pressor (CP) pain experience and attenuation. Specifically, the moderating powers of grit and dispositional optimism were examined in context of CP pain and psychological resilience. Experimental measures included the Revised Life Orientation Test (LOT-R; optimism), the Grit Scale, the Connor-Davidson Resilience Scale (CD-RISC); pain-free participants completed these measures along with a CP task. The strength of moderation of grit/optimism on the resilience and pain relationship were then evaluated via Johnson-Neyman procedure. Zero-order correlations show support for interconnectedness of grit, optimism, resilience and pain. When an individual scored highly in resilience, it was found that both grit and optimism were significant moderators in time to pain threshold. Furthermore, optimism was found to be a significant moderator in the time to pain tolerance pathway as well. In individuals with high levels of resilience, both grit and optimism can have tangible effects on CP pain. These findings show positive psychological factors can affect pain outcomes. This information could prove beneficial in understanding causes of negative pain outcomes, as well as provide positive, protective options for pain attenuation. Grit and optimism were found to moderate the resilience-pain threshold pathway, and optimism moderates the resilience-pain tolerance interaction, in individuals who scored highly on trait resilience. This study shows evidence for protective psychological factors in the pain experience, however limited to a healthy experimental population. (Key words: pain, resilience, optimism, grit, moderation, noxious cold.)
Introduction

The experience of pain is complex with multiple dimensions that are influenced by biological psychological, social, and sociocultural factors (Bates, 1996; Fields, 2009). Viewing pain as a multidimensional experience with affective and cognitive components (Melzack, 1999) has given rise to the importance of targeting maladaptive thoughts and behaviors that play a role in pain outcomes as part of an interdisciplinary approach. Psychotherapeutic interventions for those with chronic pain often target risk or vulnerability mechanisms, such as maladaptive thinking patterns via cognitive behavioral techniques (Turk, 2002; Turk & Flor, 2006). One such maladaptive thought pattern includes the degree of an individual’s pain catastrophizing, which is a powerful predictor of treatment outcomes (Jensen, Turner, Romano, & Karoly, 1991; Sullivan et al., 2001). More recently, there has been greater focus on positive mechanisms through which one adapts to pain and adversity as we are better understanding these to be unique contributors to outcomes outside of known risk or vulnerability factors (Goubert & Trompetter, 2017; Smith & Zautra, 2008).

One such positive mechanism is through increased psychological resilience. The concept of resilience has had recent interest in a number of health-related fields, including functioning in the context of pain. Resilience has been described as not only the ability to recover from significant stress, but to also sustain effective functioning in the presence of adversity, such as pain (Anrewasikporn, Ehde, Alschuler, Turner & Jensen, 2018; Sturgeon & Zautra, 2010). Individuals who score highly on resilience generally recover more quickly from painful or aversive experiences than those who are less resilient (Thompson, Bulls, Sibile, Bartley, Glover, Terry, Vaughn, Cardoso, Sotolongo, Staud, Hughes, Edberg, Redden, Bradley, Goodin & Fillingin, 2018).
Optimism is another construct that is gaining traction in what may influence health and pain outcomes. Optimism is generally understood as the prevailing attitude of expecting good things from life (Pathak & Lata, 2018; Scheier, Carver, & Bridges, 1994). High levels of optimism have been linked to improved general health outcomes (Segovia, Moore, Linnville & Hoyt, 2015) as well as higher levels of experimental pain tolerance among those at risk for knee pain (Thompson et al., 2018). Hanssen, Vancleef, Vlaeyen and Peters (2014) reported an inverse relationship between dispositional optimism and CP pain intensity, although optimism alone did not provide sufficient evidence of moderation on experienced pain.

While the construct of psychological grit has been investigated within performance contexts (Farina, Thompson, Knapik, Pasiakos, McClung, & Lieberman, 2019; Kannagara, Allen, Waugh, Nahar, Khan, Rogerson, & Carson, 2018), less is known about how grit operates within a model of behavioral health or coping with pain. Grit has emerged more recently as a potentially influential construct and is defined as an ability to persist toward long-term broader goals despite adversity (Duckworth, Peterson, Matthews, & Kelly, 2007). One study (Frederickson, 2004) connects grit and positive affect with more efficient recoveries from aversive experiences.

There is certainly a longer history of research surrounding maladaptive psychological factors such as catastrophizing. However, it is being increasingly revealed that the role of positive psychological factors is a fruitful area of study within the clinical field, yet the mechanism by which these constructs work together in influencing outcomes remains unclear. Evidence to date suggests that when evaluating the role of resilience and other positive psychological factors, a comprehensive view of how such constructs potentially work together is prudent. For example, high levels of resilience are associated with decreased pain intensity when
levels of optimism are also high (Anrewasikporn et al., 2018; Newton-John, Mason & Hunter, 2014; Pathak & Lata, 2018; Thompson et al., 2018). These studies show that resilience on its own may be limited as a strong predictor, but when combined with other positive constructs, a more powerful effect on outcomes may emerge. While there is some evidence for this with resilience and optimism in a clinical population (Thompson et al., 2018), how grit may potentially and interact with resilience is less clear.

Examining interactive models may also shed light on controversies surrounding how we define these newer positive psychological constructs. For example, whether resilience is more of a state or trait variable is unclear, as it has been measured as both (Karaimak & Figley, 2017). There has also been some contention that grit is simply a reformulation of psychological resilience. (“Study challenges validity of the psychological ‘Grit Scale’, 2017). However, Kannangara et al. found that among university students, one can be gritty without having high levels of resilience and vice versa (2018). Furthermore, these constructs appear differently in terms of gender differences. For instance, Kannagara et al. (2018) found that women were generally grittier than men; conversely, resilience shows no significant gender variation in athletes (Madrigal & Robbins, 2017) or between genders across lifetimes (Liu, Fairweather-Schmidt, Burns, & Roberts, 2014).

The purpose of this study is to investigate the effects of psychological grit and optimism on the relationship between resilience and pain tolerance to evoked noxious cold pain. Specifically, we hypothesize that optimism will enhance the effect of resilience, similar to that which has been observed in at risk populations (Thompson et al., 20128; Segovia et al., 2015; Atkinson & Martin, 2019). Furthermore, we hypothesize that psychological grit will similarly show an independent but interactive effect on how resilience affects tolerance to pain.
Methods

Participants

Sixty-two healthy individuals were recruited from a student population at the University of Montevallo. Exclusion criteria for participating in this study included experiencing any pain at the time of the study, experiencing any significant pain for more than two weeks duration in the last three months, or any prior history of chronic pain (pain with a duration of three months or longer). Participants were also excluded if they had a history of cardiovascular disease, Raynaud’s disease or other circulatory problems, or any current injury to their non-dominant hand. This study was approved by the University of Montevallo Institutional Review Board and all participants gave written informed consent for the study as required by the IRB.

Measures

Resilience. This experiment used the Connor-Davidson Resilience Scale (CD-RISC) to measure resilience among participants (Connor & Davidson, 2003). This survey contains 25 items on 0-4 Likert scales. Scores range from 0-100 with higher scores indicating greater levels of trait resilience.

Optimism. To measure optimism, participants completed the revised version of the Life Orientation Test (LOT-R; Burke, Joyner, Czech & Wilson, 2000; Scheier, Carver & Bridges, 1994). This survey contains 10 items, six of which are scored along with four filler questions. Questions are answered on a 0-4 Likert scale, assessing agreement with several statements. Scores range from 0-24 with higher scores indicating greater levels of trait optimism (Burke et al., 2000).

Psychological Grit. Psychological grit was measured in this study via the completion of the long form, 12-item grit scale (Duckworth et al., 2007). Questions are answered on a 1-5 Likert
scale, with resultant scores ranging from 12-60. Higher scores are associated with greater levels of grit. The grit scale shows high internal consistency, reporting a Cronbach’s alpha of 0.85 (Duckworth et al., 2007).

Pain Intensity. A 0-10 numeric rating scale (NRS) was used to measure pain intensity, with 0 = “no pain” and 10 = “absolute worst pain.” NRS ratings have been shown to be valid measures of pain intensity (Jensen & Karoly, 1992). NRS ratings were given at the first instance of pain (pain threshold) and again when the pain was too intense to continue (pain tolerance).

Experimental Pain

The cold pressor (CP) test was used to assess pain tolerance. The CP task is a safe and noninvasive experimental pain procedure that is commonly used in both clinical and non-clinical settings. A refrigerated cylindrical water bath apparatus was used with the following dimensions: 32-inches in height by 22-inches in diameter with an inner tank measuring 10 inches in diameter in which participants immersed their non-dominant hand up to the wrist. The inner tank was filled with water maintained at 1–2 degrees Celsius and was continuously circulated via an internal pump in order to avoid heat buildup around the hand. Participants were asked to submerge their non-dominant hand into the cold water up to their wrist. They were instructed to keep their hand submerged as long as possible but could remove their hand when they could no longer tolerate the pain. The procedure was limited to a maximum of 120 seconds for safety purposes; participants were not told about the time limit, and were instructed to keep their hands in the water for as long as tolerable.

Procedures

Following written consent, participants completed baseline questionnaires that included the CD-RISC, the LOT-R and the 12-item GRIT scale. Baseline vitals, including heart rate,
diastolic and systolic blood pressure as well as galvanic skin response was measured. The heart sensor were placed on the tip of dominant hand index and the galvanic skin response sensors were placed on the palmer 2nd (index) and 4th (ring) fingers of the dominant hand and left throughout the CPT. However, heart rate and GSR data were not included in the present analyses. After completing questionnaires and measurement of vitals, participants submerged their non-dominant hand up to the wrist in the circulating water bath. Participants were asked to indicate, following cold water immersion, the point at which they first experienced pain onset (pain threshold). The time, in seconds, from immersion to threshold as well as immersion to hand withdrawal (pain tolerance) was recorded. Participants were also asked to provide an NRS pain rating at both pain threshold and tolerance.

Data Analysis

Data were analyzed using SPSS, version 25 (IBM, Chicago, IL). Pearson correlations were used to evaluate simple linear relationships between continuous demographic variables, as well as CD-RISC, LOT-R and grit scores and pain ratings and time to threshold and tolerance. Given the small number of individuals who identified as Hispanic or of other race, we collapsed across minority groups (African American, Hispanic, Other) and used a dichotomous variable of minority/non-minority as a covariate in the mediation analyses. Gender was also included as a covariate as well as NRS pain ratings at threshold and tolerance in the models predicting time to threshold and tolerance, respectively. PROCESS macro add-on for SPSS by Hayes (2018) was used to statistically test for moderation. For significant interactions that emerged, the Johnson-Neyman procedure with bootstrapped confidence intervals was used to examine the conditional relationships between resilience and the outcome variables across a range of values of the proposed moderator. The range of values begin with the value of the moderator for which the
conditional relationship is significant at $p = 0.05$. In this way, identifying ranges of significant conditional relationships are not arbitrarily chosen. However, when comparing simple slopes for the conditional effects of resilience on threshold and tolerance outcomes, different levels of the moderator were defined as the mean and -1 SD below and +1 SD above the mean levels of the moderator.

**Results**

Means and standard deviations of demographic, predictor and outcome variables are shown in Table 1. There were 28 men (45.2%) and 34 women (54.8%). Forty-one participants were Caucasian (66.1%), 16 were African American (25.8%), two were Hispanic (3.2%) and three who identified as mixed or of ‘other’ ethnicity (4.8%). The mean age of the sample was 21.56 years ($SD = 3.53$).

<table>
<thead>
<tr>
<th>Variables of Interest &amp; Covariates</th>
<th>$M$</th>
<th>$SD$</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>CD-RISC</td>
<td>70.74</td>
<td>12.71</td>
<td>33-97</td>
</tr>
<tr>
<td>LOT-R</td>
<td>15.21</td>
<td>4.58</td>
<td>4-23</td>
</tr>
<tr>
<td>GRIT</td>
<td>39.26</td>
<td>7.06</td>
<td>23-53</td>
</tr>
<tr>
<td>NRS Pain at Threshold</td>
<td>4.63</td>
<td>1.76</td>
<td>1-10</td>
</tr>
<tr>
<td>NRS Pain at Tolerance</td>
<td>7.83</td>
<td>1.76</td>
<td>4-10</td>
</tr>
</tbody>
</table>

**Outcome Measures**

<table>
<thead>
<tr>
<th></th>
<th>$M$</th>
<th>$SD$</th>
<th>Range</th>
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</thead>
<tbody>
<tr>
<td>Time to Threshold</td>
<td>11.81</td>
<td>9.93</td>
<td>2-48</td>
</tr>
<tr>
<td>Time to Tolerance</td>
<td>52.81</td>
<td>35.99</td>
<td>10-120</td>
</tr>
</tbody>
</table>

*Note. CD-RISC = Connor-Davidson Resilience Scale; LOT-R = Life Orientation Test-Revised; NRS = Numeric Rating Scale. Time was measured in seconds.*

Zero-order correlations are shown in Table 2. Optimism strongly positively correlates with resilience as well as both time to threshold and time to tolerance. Similar to optimism, resilience scores were significantly positively correlated with both time to threshold and tolerance. Resilience and grit were shown to be positively correlated. Unlike optimism and
resilience, grit only correlated with time to threshold and is not significant in the context of time to tolerance.

Table 2. Zero Order Correlations for Study Variables

<table>
<thead>
<tr>
<th></th>
<th>CD-RISC</th>
<th>LOT-R</th>
<th>GRIT</th>
<th>NRS (Thr)</th>
<th>NRS (Tol)</th>
<th>Time (Thr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOT-R</td>
<td>.540**</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GRIT</td>
<td>.438**</td>
<td>.245</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NRS (Thr)</td>
<td>-.141</td>
<td>-.058</td>
<td>-.024</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NRS (Tol)</td>
<td>-.154</td>
<td>-.136</td>
<td>-.029</td>
<td>.464**</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>Time (Thr)</td>
<td>.446**</td>
<td>.278*</td>
<td>.269*</td>
<td>-.181</td>
<td>-.390**</td>
<td>--</td>
</tr>
<tr>
<td>Time (Tol)</td>
<td>.318*</td>
<td>.311*</td>
<td>.134</td>
<td>-.331*</td>
<td>-.497**</td>
<td>.577**</td>
</tr>
</tbody>
</table>

Note. CD-RISC = Connor-Davidson Resilience Scale; LOT-R = Life Orientation Test-Revised; NRS = Numeric Rating Scale; Thr = pain threshold; Tol = pain tolerance. * P < .05. ** P < .01.

**Predicting Pain Threshold**

**Optimism as a moderator.** The overall model examining level of optimism as a moderator for the relationship between resilience and threshold time was significant, $F (6, 55) = 4.035, p = .002, R^2 = .306$. Adding the resilience by optimism interaction term significantly accounted for additional variance explained in time to pain threshold of the CPT, $F(1,55) = 5.842, p = .019, \Delta R^2 = .074$.

The effects of psychological resilience on time to tolerance at different levels of optimism are shown in Figure 1. For those with low optimism, there was no relationship between levels of resilience and time to pain threshold, $b = 0.118, t(55) = 0.921, p = .361$. For average optimism, every point increase in resilience results in .384 seconds increase in time to when sensations are first interpreted as painful during the CP task, $b = .384, t(55) = 3.365, p = .001$. For high optimism, every point increase in optimism results in a .704 second increase in time to threshold time to when sensations are first interpreted as painful during the CP procedure, $b = .704, t(55) = 3.477, p = .001$. 

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Results of the Johnson-Neyman procedure showed that when optimism score is 12 (11.997), the effect of resilience on time to when sensations are experienced as painful is significant, $b = .223$, $t (55) = 2.004$, $p = .050$. As optimism increases, the relationship between resilience and time to when sensations are deemed painful during the CP test becomes more positive up to the highest levels of optimism, $b = .817$, $t(55) = 3.357$, $p = .001$.

![Threshold Time vs Resilience](image1.png)

*Figure 1.* Relationships between resilience and threshold time for the CPT at low, average and high levels of optimism.

**Grit as a moderator.** The model examining psychological grit as a moderator for the relationship between resilience and time to pain threshold was significant, $F (6, 55) = 4.658$, $p < .001$, $R^2 = .337$. Adding the resilience by psychological grit interaction term significantly accounted for 10 percent of the variance explained in time to pain threshold of the CP task, $F(1,55) = 8.379$, $p = .005$, $\Delta R^2 = .101$.

The effects of psychological resilience on time to pain threshold at different levels of psychological grit are shown in Figure 2. For those who score low on psychological grit, there was no relationship between levels of resilience and time to pain threshold, $b = .086$, $t (55) = .718$, $p = .476$. For average levels of psychological grit, every point increase in resilience results
in a .362 second increase in time to first experience sensations during the CP test as painful, $b = .362$, $t(55) = 3.504, p < .001$. With high levels of psychological grit, there was an approximate half-second increase in time to first interpret sensations as painful for every point increase in resilience, $b = 0.548$, $t(55) = 4.025, p < .001$, for every point increase in resilience, there was a 1.649 second increase in pain tolerance.

Results of the Johnson-Neyman procedure reveal that when levels of psychological grit reach approximately 35 (34.934), resilience begins to exert a significant positive effect on time to pain threshold, $b = .205$, $t (55) = 2.004, p = .050$. As levels of psychological grit increase, the relationship between resilience and pain tolerance becomes more positive with the highest levels of grit, $b = 0.764$, $t (55) = 3.917, p < 0.001$.

![Figure 2. Relationships between resilience and threshold time for the CPT at low, average and high levels of psychological grit.](image)

**Predicting Pain Tolerance**

**Optimism as a moderator.** The model examining level of optimism as a moderator for the relationship between resilience and time to pain tolerance was significant, $F (6, 55) = 6.178, p < .001$, $R^2 = .403$. Adding the resilience by optimism interaction term significantly accounted for
additional variance explained in tolerance time of the CPT, \( F(1, 55) = 5.567, p = .022, \Delta R^2 = .061. \)

The effects of psychological resilience on time to tolerance at different levels of optimism are shown in Figure 3. Among participants who had low levels of optimism, there was no relationship between resilience and CP procedure tolerance time, \( b = -0.131, t(55) = -0.305, p = 0.762. \) With average levels of optimism, every point increase in resilience results in a near one-second increase in tolerance time, \( b = 0.790, t(55) = 2.029, p = 0.047. \) For high levels of optimism, every point increase in optimism results in a near two-second increase in tolerance time, \( b = 1.900, t(55) = 2.646, p = 0.011. \)

Results of the Johnson-Neyman procedure revealed that when optimism is 14.922, resilience and CPT tolerance time are significantly related, \( b = 0.776, t(55) = 2.004, p = 0.050. \) As optimism increases, the relationship between resilience and pain tolerance becomes more positive with the highest levels of optimism (23.00), \( b = 2.289, t(55) = 2.647, p = 0.011. \)

![Figure 3. Relationships between resilience and tolerance time for the CPT at low, average and high levels of optimism.](image)
Grit as a moderator. The overall model examining psychological grit as a moderator for the relationship between resilience and time to pain tolerance was significant, $F (6, 55) = 5.145, p < .001, R^2 = .360$. However, adding the grit by optimism interaction term did not account for significantly additional variance explained in tolerance time of the CPT, $F (1, 55) = 2.997, p = .089, \Delta R^2 = .035$.

Discussion

This study hypothesized that both grit and optimism would independently moderate the relationship between psychological resilience and cold-pressor experimental pain, in time to pain threshold and tolerance. It was found that optimism significantly moderates the relationships in both time to threshold and tolerance, with effects being pronounced in individuals scoring at average or higher levels of dispositional optimism. Grit was found to moderate the resilience/pain threshold relationship at average or higher levels; however, grit did not significantly moderate the relationship in terms of time to pain tolerance.

Optimism was found to be a significant moderator in the relationship between pain and resilience in time to threshold and tolerance when the individual scored at average or high levels on the LOT-R. This is in accordance with the existing literature; optimism has been found to be a strong predictor of pain-related outcomes in medical settings as well as within veteran populations (Segovia et al., 2015; Goubert & Trompetter, 2017; Haslett, Fisher, Vie, Kelley, Clauw, & Seligman, 2019). Optimism has been shown to mitigate pain relationships in several studies, but the construct appears to be most effective when assessed in conjunction to other psychological protective factors. Anrewasikporn et al. (2018) found that trait resilience weakens the relationship between stressor and pain, and that high levels of optimism and positive affect can further buffer this relationship. Conversely, Hanseen, Vancleef, Vlaeyen, and Peters found
that optimism alone is not a sufficient moderator. The combination effects of resilience and optimism warrant further study, as these protective factors can greatly improve an individual’s pain experience and outcomes in clinical and non-clinical settings.

Within this study, the significance of grit as a moderator shows evidence contrary to intuition. Grit is defined as “sustained application of effort over time” (Duckworth et al., 2007) and as such, one would expect grit’s moderating effects to be more pronounced in the longer terms of the experimental pain. Blalock et al. cite the tendency for gritty individuals to persist through difficult life situations, with grit buffering suicidal ideation in the context of negative life events (2015). Furthermore, grit was identified as a predictor of long-term success in United States Special Forces assessments (Farina et al., 2019). Our experiment found grit moderating only the relationship between CP pain and resilience in the shorter term, time to first instance of pain. One possible explanation for this seemingly discrepant result concerns the validity of grit and resilience as separate constructs. Some studies with non-Western populations have raised questions about the separateness of resilience and grit (“Study challenges…” 2017). For example, in Indian populations resilience shows a distinct gender variation that is not present in American samples (Pathak & Lata, 2018; Liu et al., 2014). Within this study, grit and resilience were found to be two separate constructs, but international generalizability is a concern.

Another possible explanation for grit’s moderating effects in the short term concerns the length of the experimental procedure itself. Because grit is shown in effort over time when facing an adverse experience, it is possible that the experimental procedure was not long enough for grit to manifest itself. The pain adversity in this study was limited to 120 seconds, which pales in comparison to the 20-day adversity and grit study performed by the U.S. Armed Forces (Farina et al., 2019). Perhaps this experiment was not long enough to properly exhibit grit, and the
moderating effect shown in time to pain threshold is more representative of another protective psychological construct, such as hardiness. Further study into the relationships between grit, hardiness, and resilience is warranted, particularly given their moderating effects on painful adversities (Atkinson & Martin, 2019; Farina et al., 2019).

Future studies into positive psychological protective factors should be careful to address social aspects of psychology; there are gender and cultural differences at play in pain experiences, attenuation, and outcomes. A clearer delineation between grit and resilience is pertinent to understanding the interplay of these constructs, as such, deeper understanding of trait resilience and grit is absolutely necessary. This study was limited in population; the sample was not very diverse in terms of racial/ethnic makeup. Additionally, a wider range of ages could reveal different relationships as grit can increase with age (Duckworth et al., 2007), whereas resilience has been shown to be generally steady across lifespan (Liu et al., 2014). Furthermore, this sample was limited to healthy, college-age students without a recent history of pain or chronic pain; to generalize results to larger populations, studies with larger groups, including those with chronic pain, are needed. Lastly, to counteract the potential lack of time for grit to manifest in the CP procedure, future studies could use a longer-term experimental pain source such as ischemic or heat pain that can be repeated frequently and in longer duration; this change may provide new results in terms of grit moderating the resilience/pain relationship.

This experiment found that at average or higher levels optimism and grit moderate the resilience/CP pain relationship. Optimism was a particularly powerful moderator, with each point increase on the LOT-R yielding up to two seconds of elapsed pain exposure in terms of time to pain tolerance. Grit was a weaker moderator, only present in the relationship between resilience and the time to pain threshold; future studies with longer pain exposures may
contradict the present results, as grit returns to its definition of sustained effort over time. These results are largely in accordance with the existing literature, concluding that positive psychological constructs play interconnected roles in individual experience and attenuation to painful adversity.
References


predictors of success in the U.S. Army Special Forces Assessment and Selection course.”

*Physiology and Behavior.*


The Effects of Three Types of Walking Protocols on Perceptual Responses in Middle-Aged Women

By: Kayla Chambers

Abstract

The purpose of this study was to investigate perception of effort and enjoyment during three different durations and intensities of walking protocols in middle-aged women. Ten women (mean ± SD = 55 ± 4 years) completed three different walking protocols in a randomized, counter-balanced order. The protocols consisted of continuous walking (CW) by walking for 30 minutes at 3.0 METS, or 3.0 miles per hour (MPH), interval walking (IW) by walking for three 10-minute bouts at 3.0 MPH, and intermittent interval walking (IIW) by walking for three eight minute 40 second bouts, beginning with 30 seconds of walking at 4.0 METS, or 4.0 MPH, followed by two minutes of walking at 3.0 MPH until the end of the bout. Rating of perceived exertion (RPE) and enjoyment of exercise using validated scales were assessed during exercise at six evenly distributed increments and during rest periods (before, 0 minutes post, 10 minutes post). One-way, repeated measures ANOVA with Bonferroni corrections were conducted on the data. There was a significant difference ($p < 0.0020$ for all) in the average exercise RPE such that there was greater RPE in IIW (Mean ± SD) (13.0 ± 2.5) compared with CW (11.7 ± 2.1) and greater RPE in IIW compared with IW (11.3 ± 1.9). Additionally, there was a significant difference ($p < 0.034$ for all) in post-exercise RPE at 0 minutes such that there was greater RPE in IIW (13.2 ± 2.8) compared to IW (10.9 ± 2.3). Further, there was a significant difference ($p < 0.009$ for all) in the post-exercise RPE at 10 minutes such that there was a greater RPE in IIW (13.4 ± 2.6) compared with CW (11.8 ± 2.3), and a greater RPE in IIW compared with IW (10.7 ± 2.6). There were no significant differences ($p ≥ 0.549$ for all) in enjoyment of exercise in any condition. Although IIW elicited higher RPE than IW and CW, enjoyment levels remained the
same across protocols. Therefore, IIW may be a great exercise strategy for middle-aged women by achieving equal or greater health benefits as well as a major barrier for the population - lack of time.

**Introduction**

The participation in large amounts of physical inactivity is one of the leading health issues around the world, which contributes to increased risk of chronic diseases such as cardiovascular disease, type II diabetes, hypertension, and obesity (Biswas, Oh, Faulkner, Bajaj, Silver, Mitchell, & Alter, 2015). Contrary to this, any time or type of physical activity is beneficial to improve health-related variables (Haskell et al., 2007). Overall, only a small percentage of the United States adult population are meeting the minimum physical activity guidelines, which is problematic due to the aforementioned risk factors (Diaz et al. 2015). Specifically, middle-aged women do not engage in the minimum physical activity guidelines to achieve health benefits (Schwaneberg, Weymar, Ulbricht, Dorr, Hoffman, & van den Berg, 2017). These guidelines suggest middle-aged women should participate in a minimum of 150 minutes of moderate- or 75 minutes of vigorous-intensity, or a combination of the two intensities and minutes of physical activity per week (Piercy et al., 2018).

Possible reasons for individuals not participating in physical activity may relate to the low motivation or lack of belief in ability to accomplish the task, specifically relating to self-efficacy (Kwan & Bryan, 2008). Additionally, planned physical activity (i.e., exercise) can be stressful on the mind and body, so it may be perceived as painful and unenjoyable (Mitchell et al., 2017). Because of the possible negative perceptions of physical activity and exercise, this can consequently lead to less participation in physical activity, which increases this population’s risk of chronic disease and injuries (Justine, Azizan, Hassan, Salleh, & Manaf, 2013). Thus, it is
important for individuals to enjoy and feel positive about their physical activity engagement because this may increase their participation in physical activity (Kwan & Bryan, 2008). This is especially important in middle-age women because age is inversely associated with physical activity (Diaz et al., 2017). Therefore, different exercise modalities need to be explored with middle-aged women to discover which types this population enjoys and have positive feelings about, so that there is increased likelihood of continuing to perform physical activity as they age.

Walking is a type of physical activity that can fulfill the physical activity recommendations (Stanley & Cumming, 2010b). Previous studies suggest walking may be enjoyable (Stanley & Cumming, 2010b), which may encourage those individuals to more frequently participate in walking as a form of physical activity. Walking can be a form of exercise that elicits high enjoyment levels, remembered pleasure, and forecasted pleasure in men and women aged 18-40 years old (Zenko, Ekkekakis, & Ariely, 2016). Because walking has been demonstrated to display positive feelings among individuals, it may be a proficient method of physical activity which can increase middle-aged women’s self-efficacy, leading to the likelihood of performing this physical activity (Maly, Costigan, & Olney, 2007).

Higher exercise intensities have been shown to be superior to lower exercise intensities due to increased health benefits, but both exercise intensities are similarly enjoyable (Olney, Wertz, LaPorta, Mora, Serbas, & Astorino, 2018; Weston, Wisløff, & Coombes, 2013; Stork, Gibala, & Martin, 2018; Stork, Banfield, Gibala, & Ginis, 2017; Masuki, Morikawa, & Nose, 2017). For example, high-intensity exercise, such as high-intensity interval training (HIIT) at low and high volumes, and sprint interval training performed on a cycle ergometer by 10 active men and 9 active women, improved aerobic capacity more than moderate-intensity continuous training, while both training types were perceived as equally enjoyable (Olney, Wertz, LaPorta,
Mora, Serbas, & Astorino, 2018). A meta-analysis by Weston (2013) reported that in 273 participants with cardio metabolic disease, HIIT performed through various modes such as uphill running/walking, treadmill walking, or cycle ergometers caused a significantly greater increase in aerobic capacity and higher feelings of enjoyment as compared to moderate-intensity continuous training. Additionally, another study found that interval exercise such as HIIT and sprint interval training performed on a cycle ergometer induces enjoyment responses similar to those of moderate continuous training, suggesting that interval training may be a good option to replace continuous exercise (Stork, Gibala, & Martin, 2018). Furthermore, a meta-analysis concluded that interval exercise, such as combinations of high-intensity interval training and sprint interval training performed on cycle ergometers, treadmills, by body-weight resistance, or an arm-crank ergometer, are methods of exercise enjoyed equally or more compared to moderate- or vigorous-intensity continuous training (Stork, Banfield, Gibala, & Ginis, 2017). Interval walking also produces high adherence rates in adults over the age of 40, while also increasing physical fitness (Masuki, Morikawa, & Nose, 2017), which may be because of the high enjoyment. Therefore, higher-intensity interval exercises may be a proficient type of physical activity for middle-aged women because of the health benefits and high enjoyment demonstrated in previous literature.

Intermittent exercise consists of multiple bouts of exercise separated by periods of rest. Intermittent exercise fits well into a busy schedule and is also easier on the body, while being just as effective as continuous exercise. Three, 10-minute bouts of exercise spread throughout the day provides the same benefits as one, 30-minute bout of exercise (Haskell et al., 2007). Intermittent walking is a way for those with health implications such as arthritis, or those with busy schedules to participate in exercise; it also may cause less stress on the mind and body and
may make meeting physical activity goals more attainable. Further, this may help develop better individualized exercise programs. Intermittent exercise is a great tool to use for those individuals who cannot exercise for prolonged periods of time. High enjoyment levels have been associated with both walking and interval training, so coupling intermittent and interval walking may produce high enjoyment levels, showing this method may be a great way to get exercise. This would be a less intensive method of exercise, which is easier for middle-aged and older women to accomplish, further motivating these women to exercise.

Because many middle-aged women, including the southern United States, do not meet the recommended physical activity guidelines, different types, times, and durations of physical activity need to be explored to measure the enjoyment responses. It is important to address these factors to understand how middle-aged women enjoy different durations of walking to consider what physical activity may be best for this population. To our knowledge, there have been no studies done on the effect of different durations of walking on enjoyment of physical activity in middle-aged women. Therefore, the purpose of this study is to compare the effects of three different durations and intensities of walking protocols: continuous (CW), intermittent (IW), and intermittent interval walking (IIW) on perception of effort and enjoyment. A previous study utilizing three conditions of walking in ten healthy men and women (mean age = 24) demonstrated no differences in enjoyment between the three conditions (Mitchell et al., 2017). Therefore, our hypothesis is there will be similar enjoyment responses before, during, and following exercise in the intermittent and interval walking conditions compared to continuous walking.
Methods

The university institutional review board approved all procedures. Women between the ages of 45-64 were recruited to participate in this study. Recruitment occurred by the investigators advertising the study through word of mouth and e-mail to women in a southeastern United States community. Eleven women volunteered to participate in the investigation. Participants completed consent, medical history, and a trial of walking for 30 continuous minutes at 3.0 miles per hour to determine if they were eligible to participate. Additionally, participants completed the International Physical Activity Questionnaire (IPAQ) for descriptive statistics on the amount and intensity of physical activity participation per week. Participants were excluded from the study if they reported a history of health risks associated with exercise, including orthopedic injuries, cardiovascular trauma, high blood pressure, etc. If one could not complete the 30 continuous minutes on the treadmill, she was excluded from the study.

Each participant completed four visits to the exercise science laboratory on four separate days. The first visit consisted of assessing baseline biometrics such as height, weight, hip and waist circumference, and a three-site skinfold test. Additionally, participants completed the trial of walking for 30 continuous minutes at 3.0 miles per hour on the treadmill. The participants were then randomized and counterbalanced into an order for the next three visits by drawing a number from a bag which assigned them to an order for the next three sessions. The participants were equally distributed for the three sessions. Visits two – four consisted of completing one of the three protocols, depending on which randomly-selected group the participant was assigned. Group one completed continuous walking, intermittent walking, and then intermittent interval walking. Group two completed intermittent walking, continuous walking and then intermittent interval walking. Group three completed intermittent interval walking, intermittent walking, and
then continuous walking. Before each visit, participants were instructed to refrain from any
vigorous activity for 24 hours prior, and to not eat two hours before their sessions. Immediately
before their session, a 24-hour history was completed to ensure these criteria. Each visit was held
at least 48 hours apart from a previous visit and was held within an hour of the time of day of the
previous visit. At the beginning of each of visits two – four, participants were explained the
protocol for the visit, a heart rate monitor (Polar H10, USA) was strapped on to the bottom of the
sternum to assess heart rate during the walking protocol, and then sat quietly for five minutes.

A low-moderate to high-moderate intensity, which is equivalent to 3.0 METS, or 3.0
miles per hour, and 4 METS, or 4.0 miles per hour, respectively, was selected for the protocols
(Pescatello, 2017), which has been utilized in a previous study (Mitchel et al., 2017). The CW
condition consisted of participants walking for 30 continuous minutes at 3.0 miles per hour, then
resting for 15 minutes. The total time for this protocol was about 50 minutes. The IW condition
consisted of participants walking for 10 minutes at 3.0 miles per hour and resting for 15 minutes.
This cycle was completed three times for a total of about 80 minutes. The IIW condition
consisted of participants walking at 4.0 miles per hour for 30 seconds, then 3.0 miles per hour for
two minutes, for a total of eight minutes and 40 seconds, then resting for 15 minutes. This cycle
was completed three times for a total of about 75 minutes. Rating of Perceived Exertion (RPE)
(Borg, 1982), using the Borg 6-20 scale and Enjoyment levels using the Exercise Enjoyment
Scale (EES) (Stanley & Cumming 2010a) were assessed immediately before, during (six evenly
distributed increments), immediately after, and 10 minutes after the exercise. For each protocol,
the workload was the same, so that each protocol produced the same amount of effort from
participants. Diagrams for the three protocols are included in figure 1. Of the 11 participants who
volunteered for the study, all the women met the qualifications described previously to
participate in the study. However, one participant dropped out of the study due to an ankle injury. Therefore, our final sample was 10 women between the ages of 45-64 years old.

Working effort during the session was assessed using Borg’s RPE scale (Borg, 1982). This instrument has been shown to have adequate reliability and validity for assessing perceived efforts. Items on this scale begin at “No Exertion At All” for six and end at “Maximal Exertion” for 20.

Exercise Enjoyment during the session was assessed using the EES (Stanley & Cumming 2010a). This instrument has been shown to have adequate reliability and validity for assessing the enjoyment of exercise. This scale ranges from one – seven and begins with instructions to “use the following scale to indicate how much you are enjoying the exercise session” with the numbers starting at one with “Not at All” for one and “Extremely” for seven.

Statistical Analyses

Descriptive statistics were used to evaluate participants’ age, height, weight, hip and waist circumference, and body fat percentage. To assess differences in exercise RPE and enjoyment between the three protocols (CW, IW, and IIW), a repeated-measures, one-way analysis of variance (ANOVA) was utilized. Additionally, a Bonferonni test was conducted if there was a statistical significance for either of the variables between the three conditions. To assess these differences, Statistical Packages for the Social Sciences (SPSS) version 20 was used. Statistical significance was set at $p \leq 0.05$.

Results

The average age for the 10 women participants was (mean ± SD) 55 ± 4 years. The participant characteristics are depicted in table 1. There were no differences in RPE or EES between the three conditions at baseline (table 2).
For the RPE, there was a significant difference ($p < 0.001$) in the average exercise RPE such that there was a significantly greater ($p = 0.020$) RPE in IIW (13.0 ± 2.5) compared with CW (11.7 ± 2.1) and a significantly greater ($p = 0.009$) RPE in IIW compared with IW (11.3 ± 1.9) (figure 2). Additionally, there was a significant difference ($p < 0.005$) in post-exercise RPE at 0 minutes such that there was a significantly greater ($p = 0.034$) RPE in IIW (13.2 ± 2.8) compared to IW (10.9 ± 2.3) (figure 3). Further, there was a significant difference ($p < 0.002$) in the post-exercise RPE at 10 minutes such that there was a significantly greater ($p = 0.012$) RPE in IIW (13.4 ± 2.6) compared with CW (11.8 ± 2.3), and a significantly greater RPE ($p = 0.009$) in IIW compared with IW (10.7 ± 2.6) (figure 4).

There were no significant differences ($p \geq 0.549$ for all) in the EES between the three exercise protocols (CW, IW, IIW) at any of the three time points: exercise average (figure 5), 0 minutes post exercise (figure 6), and 10 minutes post exercise (figure 7).

Discussion

The purpose of the current study was to examine perceptual and enjoyment responses of three walking protocols in middle-aged women. Specifically, the present investigation examined 10 women aged between 45-62 years old during continuous walking for 30 minutes at 3.0 MPH, interval walking which consisted of three bouts of 10 minutes at 3.0 MPH, and intermittent interval walking which consisted of three bouts of eight minutes and 40 seconds, beginning with 30 seconds of walking at 4.0 MPH, followed by two minutes of walking at 3.0 MPH, alternating until the end of the bout. The variables assessed were the participant’s subjective perceptual (measured by RPE) and enjoyment responses before exercise, during exercise, post-exercise at 0 minutes, and post-exercise at 10 minutes. The results indicated IIW RPE during exercise was 15% greater than IW and 11% greater than CW. IIW RPE post-exercise at 0 minutes was 19%
greater than IW. IIW RPE post-exercise at 10 minutes was 25% greater than IW and 13% greater than CW. Enjoyment responses among the protocols remained at similar levels, as there were no significant differences between protocols.

Previous studies have shown high enjoyment levels are perceived with continuous moderate-intensity exercise on a cycle ergometer in 75 moderately-active men and women (20.2 ± 1.33 years old) (Stanley & Cumming, 2010b), and in 18 sedentary men (23.2 ± 10.5 years old) and 42 sedentary women (22.5 ± 4.7 years old) (Treasure & Newbery, 1998). Additionally, in a study by Stork, Gibala, and Ginis (2018), preferences and enjoyment for interval training exercises, in this case high-intensity interval training and sprint interval training both on a cycle ergometer, can be equal to or higher than that of continuous training exercises. These studies compare enjoyment of different intensities of exercise; the results demonstrate similar conclusions that higher-intensity exercises are just as enjoyable as lower-intensity exercises.

While these studies assessing RPE and enjoyment during different bouts and intensities of exercise are limited to the cycle ergometer, one study expanded to examine RPE and enjoyment during continuous walking, interval walking, and intermittent interval walking in college-aged individuals (24 ± 5 years old) (Mitchell et al., 2017). These results are similar to the present study’s findings that the intermittent interval walking bouts elicited similar enjoyment levels as continuous walking. Together, these investigations suggest interval exercise training may be a way to improve exercise adherence due to similar enjoyment levels. The current study is different than those previous because we examined RPE and enjoyment levels in middle-aged women.

Previous studies show performing moderate-intensity exercise, may provide the same or greater health benefits in men and women than low-moderate intensity exercise (Mitchell et al.,
2017; Haskell et al., 2007; Garnier et al., 2018; Rodriguez-Hernandez & Wadsworth, 2019; Weston, Wisløf, & Coombes, 2013). In a meta-analysis, Swain (2006) concluded that high-intensity exercises, performed as swimming, walking, running, or bicycling, elicited greater health improvements such as reduced risk of cardiovascular disease, improved diastolic blood pressure, and increased aerobic capacity, than moderate-intensity exercises. In a study conducted on healthy, inactive women aged 18-30 years old by Trapp (2008), it was found that high-intensity intermittent exercise on a cycle ergometer produced more health benefits than the same mode of steady-state exercise such as more significant reductions in total body mass, fat mass, trunk fat, and plasma insulin levels, thus demonstrating the high-intensity intermittent exercise is more beneficial for health. Because the aforementioned studies demonstrate findings that support higher-intensity, intermittent bouts of moderate-high intensity exercise may be just as or more beneficial than continuous, lower-intensity exercise. Intermittent bouts of higher intensity exercise may be a pragmatic exercise methodology to yield greater health benefits. The intermittent interval walking protocol used in this investigation may be a sufficient exercise strategy for middle-aged women to achieve their physical activity goals, while achieving the same benefits as continuous exercise, being able to fit the exercise into their schedule more easily and enjoying the exercise as much as a continuous bout. Exercise adherence to intermittent, interval walking is likely to be similar to other forms of exercise because this study revealed the most effortful exercise (the intermittent interval walking condition) was the most enjoyable and enjoying the exercise can lead to exercise adherence (Wankel, 1993).

Limitations

While this is the first study we are aware of which assessed the effects of different walking protocols on perceived exertion and enjoyment in middle-aged women, it is not without
limitations. One limitation is the measurements conducted were self-reports. Another limitation is that the intermittent bouts were held by sitting in a quiet, controlled laboratory. Here, participants were restricted to sit and rest with no other activities, which possibly caused a negative effect on their enjoyment of the protocol. However, this was necessary to prevent any hindrance to their enjoyment responses to the protocols. Future studies should measure the effects of multiple intermittent bouts spread out throughout the day, and in different environments such as outside on a track, nature walk, or an indoor track. Additionally, longitudinal research designs should be conducted to assess the effects of intermittent interval walking compared with other forms of walking.

Conclusion

The current investigation is the first study measuring different durations and intensities of walking on middle-aged women’s perception of effort and enjoyment. Intermittent interval walking was shown to produce higher perceived exertion and similar enjoyment levels as continuous and interval walking. Due to the greater health benefits associated with intensity of exercise, intermittent interval walking may be a good method of physical activity for middle-aged women.
References


Table 1. Descriptive characteristics of participants (women: n = 10).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean ± SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (y)</td>
<td>55 ± 4</td>
</tr>
<tr>
<td>Height (cm)</td>
<td>163.7 ± 5.5</td>
</tr>
<tr>
<td>Body mass (kg)</td>
<td>73.7 ± 14.9</td>
</tr>
<tr>
<td>Waist circumference (cm)</td>
<td>92.4 ± 14.7</td>
</tr>
<tr>
<td>Waist to Hip Ratio (cm)</td>
<td>0.85 ± 0.07</td>
</tr>
<tr>
<td>% body fat</td>
<td>23.8 ± 3.7</td>
</tr>
<tr>
<td>MET-min·wk$^{1,2}$</td>
<td>739.2 ± 505.1</td>
</tr>
<tr>
<td>Weekday Sitting (min·day$^{-1}$)</td>
<td>366.0 ± 227.5</td>
</tr>
</tbody>
</table>

$^{1}$Calculated from the International Physical Activity Questionnaire.

Table 2. Mean ± SD baseline values for exercise trials (n = 10).

<table>
<thead>
<tr>
<th>Variable</th>
<th>CW</th>
<th>IW</th>
<th>IIW</th>
</tr>
</thead>
<tbody>
<tr>
<td>EES</td>
<td>4.2 ± 0.79</td>
<td>4.3 ± 0.67</td>
<td>4.4 ± 0.97</td>
</tr>
<tr>
<td>RPE</td>
<td>12.1 ± 1.3</td>
<td>11.9 ± 3.2</td>
<td>12.5 ± 2.6</td>
</tr>
</tbody>
</table>

EES = Exercise Enjoyment Scale; RPE = rating of perceived exertion. There were no differences among Treatments ($p > 0.05$) for any variables.
**Figure 1.** Three walking protocols from top to bottom: Continuous Walking, Intermittent Walking, and Intermittent Interval Walking.

**Figure 2.** Mean Exercising RPE measurements (mean ± SD) for CW, IW, and IIW.

*Significantly different from CW and IW (p < 0.05).

**Figure 3.** Post-exercising RPE measurements (mean ± SD) at 0 minutes for CW, IW, and IIW. *Significantly different from IW (p < 0.05).
Figure 4. Post-Exercise RPE measurements (mean ± SD) at 10 minutes for CW, IW, and IIW. *Significantly different from CW and IW ($p < 0.05$).

Figure 5. Mean Exercising EES measurements (mean ± SD) for CW, IW, and IIW. No significant differences among protocols.
Figure 6. Post-exercising EES measurements (mean ± SD) at 0 minutes for CW, IW, and IIW. No significant differences among protocols.

Figure 7. Post-exercising EES measurements (mean ± SD) at 10 minutes for CW, IW, and IIW. No significant differences among protocols.
Acute Physiological Responses of Three Walking Protocols in Middle-Aged Women

By: Abdel Collado

Abstract

Purpose: To evaluate the effects of continuous and intermittent walking on heart rate (HR) and Rating of Perceived Exertion (RPE) during exercise and after exercise. Methods: Ten middle-aged women (mean ± SD age = 45 ± 5 years) completed one 30-min continuous walking, three 10-min intermittent walking, and three 8-min 40-s interval walking (IIW) protocols of the same volume [90 metabolic equivalent (MET)-min]. In addition, HR and RPE were measured immediately following and 10 minutes following each protocol. Results: IIW produced higher during and post-exercise HR and RPE than IW. Similarly, continuous walking produced higher during exercise RPE a post-exercise HR than IW. Conclusion: The shorter, moderate-intensity IIW protocol resulted in higher exercise intensity compared to moderate-intensity continuous and IW of similar volume in middle-aged women and may be an alternative form of exercise prescription for those who need to address the lack-of-time barrier.

Introduction

It is well known that efficient physical activity can decrease one’s risk of chronic disease and improve overall quality of life (Morikawa et al., 2009). However, many Americans, specifically middle-aged women, are less likely to meet the physical activity recommendations of at least 75 minutes of vigorous or 150 minutes of moderate intensity aerobic exercise per week (Harris et al., 2013). Previous 2008 physical activity guidelines suggest multiple training exercises ≥ 10 minutes throughout the day to reduce physiological effects that occur from extended sedentary behavior (Nose et al., 2009); yet, current guidelines have eliminated the
minimum exercise bout time of 10 minutes (Piercy, Troiano, & Ballard, 2018). Therefore, aerobic exercises of various bout time need to be examined.

Lack of time is consistently cited as a barrier as to why Americans do not meet the current physical guidelines. Interval training, an effective time-efficient method of exercise, is composed of multiple bouts of training of various intensities separated by rest. It can reduce chronic disease risk and improve oxygen uptake and muscular strength as individuals age (Mitchell et al., 2017). High intensity interval training can provide similar or greater benefits as continuous exercise in a shorter amount of time (Garnier et al., 2018) but it may be too intense and unsafe for aging populations (Campbell, Moffatt, & Kushnick, 2011). Therefore, a moderate-intensity training session may be more favorable and effective in this at-risk population (Olney et al., 2018).

Adults who meet the physical activity recommendations report walking as their preferred method of exercise due to its undemanding exertion (Olney et al., 2018). Intermittent walking, a form of multiple bouts of walking, has been cited as a gentle start up for sedentary populations versus continuous walking (Focht et al., 2013). While previous literature suggests that interval training elicits higher heart rate (HR) and similar or greater health benefits than continuous training, limited literature exists on a safer form of intermittent interval walking (IIW) (Garnier et al., 2018). Therefore, the purpose of this study was to compare HR responses of one 30-minute continuous; three, 8-minute 40-second bouts of intermittent interval; and three, 10-minute bouts of continuous walking protocols during and following exercise in middle-aged women. We hypothesized that intermittent and intermittent interval walking will elicit higher HR than continuous walking.
Methods

Study participants

A sample of 10 middle-aged women completed a Physical Activity Readiness Questionnaire, a medical history questionnaire, and 30 minutes of walking on a treadmill at 3 mph as inclusion criteria to participate in the study. In addition, current physical activity levels of each participant were obtained via the International Physical Activity (short version) Questionnaire (Ekelund et al., 2006). This study was approved by a local Institutional Review Board.

Protocol

Prior to arrival, participants were asked to avoid consumption of food during the preceding 2 hours. During the initial session, height, weight, hip and waist circumference, and body fat percentage were measured via a scale, stadiometer, Gulick II measuring tape, and sum of 3 skinfolds (Mitchell et al., 2017), respectively.

Participants completed one continuous, one intermittent, and one intermittent interval walking protocols each consisting of the same work volume [90 metabolic equivalent (MET)-minutes] (Figure 1). The walking protocols were performed on a treadmill at 0% grade in a controlled temperature environment. Walking protocols were performed within 1 hour of arrival of the initial session and separated by a minimum of 48 hours. Each counterbalanced treatment order was randomly selected by participants.

The continuous walking protocol consisted of 30 minutes of walking at a low-moderate intensity (3 METs; ~ 4.8 km/h) (Focht et al., 2013), whereas the intermittent walking (IW) consisted of three, 10-minute bouts of low-moderate intensity walking separated by 15 minutes of rest. The IIW protocol consisted of three, 8-minute 40-second bouts of cycled work—active
recovery bouts with 30 seconds high-moderate (5 METS; ~ 6.4 km/h) (Focht et al., 2013):120 seconds low-moderate (3 METs; ~ 4.8 km/h) intensities separated by 15 minutes of rest.

Before each protocol, participants’ heart rate (HR) and ratings of perceived exertion (RPE; using 6-20 Borg scale) were obtained following five minutes of quiet seated rest. In addition, participants’ during HR and RPE were measured at 6 evenly distributed timepoints (Mitchell et al., 2017). During continuous walking and IW, HR and RPE were measured every five minutes; whereas, IIW measured HR and RPE at 4 minutes and 10 seconds and at 8 minutes and 20 seconds at each bout. In addition, HR and RPE were measured immediately following and 10 minutes following each protocol.

Average HR and RPE during and after exercise from each treatment were compared using one-way repeated measures analyses of variance (ANOVAs). When appropriate, pairwise comparisons were analyzed using a Bonferroni post-hoc procedure. Statistical Package for the Social Sciences v. 22 (SPSS; Armonk, NY) was used for all data analyses, and an alpha level of 0.05 was used for all hypothesis tests.

Results

Study participants’ physical characteristics are located in Table 1. Participants’ baseline HR and RPE were not different; therefore, participants had similar baseline values (Table 2).

The walking protocols’ average exercising HR and RPE are shown in Figures 1 and 2. IIW (112 ± 16 beats/min) produced a higher during exercise HR than IW (105 ± 14 beats/min; p = 0.01), but not continuous walking (107 ± 14 beats/min; p > 0.05). Continuous walking and IW did not differ (p > 0.05). During exercise RPE was different among the walking protocols (p < 0.001). IIW (13 ± 3; p = 0.009) and continuous walking (12 ± 2; p = 0.02) both produced higher RPEs than IW (11 ± 2). Continuous walking and IIW did not differ (p > 0.05).
Immediately after each protocol, 0 minutes post exercise, continuous walking (108 ± 14 beats/min) and IIW (109 ± 16 beats/min) produced higher HR compared to IW (102 ± 14 beats/min) (Figure 4). 10-minute post exercise, only continuous walking (82 ± 18 beats/min) produced a significantly higher HR than IW (73 ± 12 beats/min), while IIW (77 ± 12 beats/min) was similar to both continuous walking and IW (p > 0.05) (Figure 5). IIW (0 minutes: 13 ± 3; 10 minutes: 14 ± 3) produced a higher RPE than IW (0 minutes: 11 ± 2; 10 minutes: 11 ± 3) immediately following (Figure 6) and 10 minutes post-exercise (Figure 7).

**Discussion**

The primary purpose of this study was to examine the acute physiological responses of three walking protocols of the same work volume. As we assumed, intermittent interval walking resulted in significantly higher HR than continuous walking, but IW did not. It was also found that IIW elicited significantly higher RPE in comparisons to IW and continuous walking.

Similar to a previously study conducted by Mitchell et al. (2017), interval walking protocols produced a higher during exercise HR than continuous walking. However, our interval walking protocol was multiple bouts compared to single bouts and middle-aged participants compared to college-aged.

IIW resulted in higher RPE than both IW and continuous walking in middle aged adults 10 minutes following exercise; this may be due to the reduced aerobic capacity of this older population. IIW also elicited higher HR during and post-exercise. HR and RPE have linear relationships with exercise intensity and calories burned; therefore, this study indicates that the shorter, more intense, IIW protocol utilized greater caloric expenditure than IW and continuous walking.
As a response to reduced compliance of meeting the minimum physical activity recommendations of 150 min/week, greater emphasis should be placed on walking to promote physical activity due to its safety and effectiveness in promoting health. The new physical guidelines want Americans to become active without a minimum time restriction to promote physical activity health benefits. Since exercise is a method to a healthy lifestyle and prevents chronic diseases, it is known that higher intensity elicits the same or more benefits than a constant duration of traditional exercise. We found that the IIW may be a walking protocol suitable for middle-aged women and may be an alternative form of exercise prescription for those who need to address the lack-of-time barrier.
References


en a high intensity interval training and a moderate intensity continuous training when performed in a nonlaboratory setting in moderately obese women

https://www.cdc.gov/mmwr/preview/mmwrhtml/mm6217a2.htm


http://pubs.sciepub.com/jpar/2/1/5/index.html


Type and intensity of exercise

- CW: Rest, 30 min walking at 3 METs, Rest
- IW: Rest, 30 s walking at 5 METs, Rest
- IIW: Rest, 2 min walking at 3 METs, Rest

Time course of rest and exercise (min)

0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80
Figure Caption

Figure 1. Schematic representation of the three walking protocols.

CW = continuous walking; IW = intermittent walking; IIW = intermittent interval walking protocol.
Figure 2

![Bar chart showing Exercise HR Average for CW, IW, and IIW conditions.](image)

Figure 3

![Bar chart showing Exercise RPE Average for CW, IW, and IIW conditions.](image)
Figure Captions

Figure 2. Mean exercise HR (mean ± SD) during continuous and intermittent exercises at 90 MET-min (n = 10). CW = continuous walking, IW = intermittent walking, and IIW = intermittent interval walking protocols. * Significantly different from IW (p < 0.05).

Figure 3. Mean exercise RPE (mean ± SD) during continuous and intermittent exercises at 90 MET-min (n = 10). CW = continuous walking, IW = intermittent walking, and IIW = intermittent interval walking protocols. * Significantly different from IW (p < 0.05).
Figure 4

![Bar chart showing heart rate (HR) measurements for CW, IW, and IIW groups after 0-minute post-exercise. There are significant differences indicated by asterisks (*).]

Figure 5

![Bar chart showing heart rate (HR) measurements for CW, IW, and IIW groups after 10-minute post-exercise. There are significant differences indicated by asterisks (*).]
Figure Captions

**Figure 4.** 0-minute post exercise mean HR (mean ± SD) following continuous and intermittent exercises at 90 MET-min (n = 10). CW = continuous walking, IW = intermittent walking, and IIW = intermittent interval walking protocols. * Significantly different from IW (p < 0.05).

**Figure 5.** 10-minute post exercise mean HR (mean ± SD) following continuous and interval exercises at 90 MET-min (n = 10). CW = continuous walking, IW = intermittent walking, and IIW = intermittent interval walking protocols. * Significantly different from IW (p < 0.05).
Figure Captions

**Figure 6.** 0-minute post-exercise mean RPE (mean ± SD) following continuous and intermittent exercises at 90 MET-min (n = 10). CW = continuous walking, IW = intermittent walking, and IIW = intermittent interval walking protocols. * Significantly different from IW (p < 0.05).

**Figure 7.** 10-minute post-exercise mean RPE (mean ± SD) following continuous and interval exercises at 90 MET-min (n = 10). CW = continuous walking, IW = intermittent walking, and IIW = intermittent interval walking protocols. * Significantly different from IW and CW (p < 0.05).
**Table 1.** Descriptive characteristics of participants (women: n = 10).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean ± SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (y)</td>
<td>45 ± 5</td>
</tr>
<tr>
<td>Height (cm)</td>
<td>171.0 ± 6.9</td>
</tr>
<tr>
<td>Body mass (kg)</td>
<td>77.3 ± 21.8</td>
</tr>
<tr>
<td>Waist circumference (cm)</td>
<td>78.1 ± 12.2</td>
</tr>
<tr>
<td>Waist-to-waist ratio (cm)</td>
<td>99.3 ± 12.0</td>
</tr>
<tr>
<td>% body fat</td>
<td>13.0 ± 8.3</td>
</tr>
<tr>
<td>MET-min-wk⁻¹‡</td>
<td>13.0 ± 8.3</td>
</tr>
<tr>
<td>Weekday Sitting (min·day⁻¹) ‡</td>
<td>13.0 ± 8.3</td>
</tr>
</tbody>
</table>

‡Calculated from the International Physical Activity Questionnaire.

**Table 2.** Mean ± SD baseline values for exercise trials (n = 10).

<table>
<thead>
<tr>
<th>Variable</th>
<th>CW</th>
<th>IW</th>
<th>IIW</th>
</tr>
</thead>
<tbody>
<tr>
<td>HR (beats·min⁻¹)</td>
<td>73.1 ± 10.5</td>
<td>74.2 ± 11.1</td>
<td>75.6 ± 9.0</td>
</tr>
<tr>
<td>RPE</td>
<td>12.1 ± 1.3</td>
<td>11.9 ± 3.2</td>
<td>12.5 ± 2.6</td>
</tr>
</tbody>
</table>

HR = heart rate; RPE = rated of perceived exertion. There were no differences among treatments (p > 0.05) for any variables.
Stress in African American First Generation College Students

By: Jameka Greer

Abstract

Each person is made uniquely, but stress is something we all encounter no matter the social class, race, age, or even gender. The purpose of this study was to systematically review the literature pertaining to African American, first-generation college students and stress. Over 10,000 initial articles were found but they were eventually culled down to 12, using boolean phrase methods. Results indicate that there are unique stressors for first-generation college students and African American students and that belonging to both of these categories can add even more stress to a college student’s life. Coping mechanisms and implications for the future are discussed.

Keywords: First generation college student, stress & coping, black or African American

Introduction

Each person is made uniquely, but stress is something we all encounter no matter the social class, race, age, or even gender. MedicineNet (2016) defines stress as a physical, mental, or emotional factor that causes bodily or mental tension. Stress for most people comes in various ways, and stress can be both positive and negative. College is a new chapter where young people embark on new experiences and become acquainted with opportunities that may cause stress in their lives (Negga, Applewhite, & Livingston, 2007). Negga’s et. al (2007) study states the following: “For the college student, stress can take on many forms in their daily life. The pressures of maintaining a balance between interpersonal relationships, academic demands, one's own expectations and maintaining personal relationships can be an extremely daunting task” (p.2). Findings from the literature highlight the central importance of institutional supports and
understanding the links between stress and academic achievement among first-generation college students (Garriott & Nisle, 2017).

First-generation college students experience many levels of stress that include living away from home, adjusting to scholarly rigor, time management and developing friendships (Stephens, Hamedani, & Destin, 2014; Figure 2). Additionally, first-generations do not have parents or other social support to help them navigate the college environment (Davis, 2010). Furthermore, the decision to leave school or remain to complete a college degree is heavily based on the student’s satisfaction with his or her college choice (Tinto, 1993). In early work, (Holland and Richards, 1965) described that students’ college choice depended on 1) intellectual emphasis of prospective campus, 2) practical concerns, such as closeness to how, cost 3) advice of others (counselor or parent) and 4) perceived social climate.

Coping with stress is something everyone does differently. According to Hutchison (2015) one common method of human coping as adaptation. This adjustment to a person’s perceptions or lifestyle can be seen on college campuses everywhere. College students in general can experience new stressors related to adjusting to college level courses. In addition to the average stressors of college, first- generation college students can experience stress above and beyond the norm. Dealing with these stressors is important for a student’s mental health, as well as their academic success.

Black or African American students make up 14 % of the United States higher education system (National Center for Education Statistics, 2016). Furthermore, 23% of African American students are first-time, full-time freshman in four year colleges (Figure 1). Even before graduating high school, many black students lack the necessary resources to get into college and to succeed (UNCF, 2018). Likewise, getting into college, earning scholarships and succeeding
in later studies becomes more of a challenge. Several barriers to graduating college for African American students is supported by evidence of low retention rates of black students across the nation (Bridges, 2018). The purpose of this research study was to conduct a systematic review of the most relevant literature related to first generation college students, black or African American, and coping strategies for stress. This review answered questions pertaining to what kinds of differences exist regarding these student groups, what helps them to survive and thrive during college, and what are suggested implications for colleges and universities.

**Methodology**

The first step to getting the research started consisted of choosing a topic. In the beginning, the topic that was chosen was *Stress in First-Generation College Students*. Which was soon narrowed down to the precise topic *Stress in African American First-Generation College Students* due to the broadness of the previous topic. The second step consisted of generating five questions to find the results that were needed to be obtained to discover why African American first generation college students stress. The following questions were asked:

1) What was the sample size? 2) What are stressors for first-generation college students? 3) What are their coping strategies? and 4) How is the experience different for African Americans?

The third step comprised of using the Carmichael’s Library databases by searching for the phrases “first-generation college students”, “stress and coping” and “black or African American”. Ten-thousand results were found based on those phrases alone; however, eighteen articles were narrowed down by specifically searching for “first-generation college students” within the title. Among those eighteen articles, six were eliminated because there were no
African Americans participants in the studies. Consequently, twelve articles were used for this research.

**Results**

**First-Generation College Students**

This group of individuals faced many stressors such as living away from home, adjusting to rigorous college-level classes, developing friendships, and time management (Garriott and Nisle, 2018). (Chen et. al, 2005, as cited in Wang, 2014) First-generation college students may deal with college and post-college academic challenges such as declaring a major, maintaining a full course load, earning high grades, obtaining the degree, and pursuing promising professional development opportunities. First-generation college students are overrepresented among students who leave college after their first year (Billson et. al, 1982, as cited in Eitel et. al, 2009).

There were also findings stating that because first-generation college students are first in their families to attend college are less knowledgeable about college alone and the costs and application processes (York-Anderson & Bowman, 1992, as cited in Kelly et al, 2008). Because of the lack of knowledge and preparation may influence students' decision making when they are trying to determine which college will be appropriate (Kelly et. al, 2008).

**Stress and Coping**

Stress was significantly related to institutional support (Garriott and Nisle, 2018). Meaning for first-generation students not having the proper assistance at the collegiate level was exceptionally hard for most students to excel in their college-level classes. Non-academic workload played an essential role in stress as well as pressure from family members, and the increase of financial stress (Garriott and Nisle, 2018).
For coping, we found that reflective coping was used to help determine how each individual reflectively coped with their new form of academic stressors. The relation between stress and reflective coping was weaker for first-generation students due to their lower capacity to rely on forms of social capital for navigating college compared to non-first students (Garriott and Nisle, 2018). As stated by Garriet and Nisle (2018) reinforcing forms of coping strategies to students as support may be an essential tool to help them adapt more to their new-found college experience.

**Black or African American College Students**

Similarities to other minorities, the difference between Black/African-American, as stated in Williams and Ferrari (2015) most stated feeling racial tensions, intolerance, and exclusion, and the pressure to conform to prior stereotypes, perceive less equitable treatment by faculty and staff, perceive less policy and practice commitment toward diversity, and perceive university environments as more hostile in terms of ethnicity. African-American first-generation college students appear to weigh parental input in their college choice process as more important than their peers of other races (Cho et. al, 2008). Acceptance of racial diversity was more important to all African-American respondents in comparison to their peers of other races (Cho et. al, 2008). African-American first-generation students differed most strongly from their non first-generation peers in their reliance on their parents’ preferences for which college to attend (Cho et. al, 2008).

**Discussion**

This systematic literature review was important because it discussed several causes of stress in African American First-Generation College Students. Stress or any mental health issues are always important to address, especially within the African American community. A vast
majority of African Americans aren’t well-informed about mental illness, which leads them to believe symptoms are a sign of weakness (Fairbanks et al., 2018). Because of these beliefs, there are many first generation African American college students who are coping poorly with the new experiences and stressors associated with college for the first time. Because first-generation college students are first in their families to attend college, they often are not prepared to identify the school that is best equipped to suit their needs. “This lack of knowledge and preparation may influence students’ decision making when they are trying to determine which college will be the most appropriate for their needs.” (Cho et al. 2008, p. 96).

In addition, first-generation college students are often underrepresented on college campuses, particularly African American and other minorities (UNCF, 2018). “As a result, first-generation or ethnic minority students who are underrepresented and most likely to be stigmatized as incompetent in the academic domain” (Cho et al., 2008, p.103); this can make it difficult for students to feel a sense of belonging. These students are most likely stigmatized as incompetent in the academic domain and may be more vigilant in seeking social opportunities that provide a sense of belonging and connectedness (Hudley & Graham, 2001). Similarly, castelike groups, that include low-income students have visible evidence that discrimination is a permanent feature of college life that may negate the benefit of education for these groups (Cho et. al, 2008).

Future implications to help first-generation college students to adjust to the new found world of college could possibly be promoting things on campus specifically for first-generation students like most campuses do for freshmen students. Colleges should also continue to invest in programs like TRIO Upward Bound, Student Support Services, and the McNair Scholars Program and other forms of programs that can help first-generation college students. Overall,
universities might consider providing opportunities for first-generation college students to develop social networks and recruitment programs that support retaining first-generation college students rather than a general focus on increasing admission and matriculation rates.

Figure 1. The Demographics of The Newest Generation

Note: National study cited is the National Education Longitudinal Study (1988-2000).
Main Causes of Stress

- **20% Juggling Work/Personal Lives**
- **6% Lack of Job Security**
- **28% People Issues**
- **46% Workload**

Source: EAP provider ComPsych’s first half of 2006 StressPulse Survey.

Figure 2. Main Causes of Stress
Figure 3. 100 Top Colleges Vow to Enroll More Low-Income Students
References


A Black “Herstory” of Superhero Comics

By: Kayla Johnson

Abstract
The following project is an online exhibit and study, which discusses the representation of Black female characters in the superhero genre of sequential art. The highlighted examples are drawn from superhero comics written from the 1970s blaxploitation era to more recent examples that feature various types of Black women, all of which affect and reflect certain cultural norms, be they problematic or progressive. This study explores the challenges and successes in accurately depicting Black women through the analysis of three main themes manifested throughout the literature: accessible roles of agency in society, ownership of voice, and representation of the body. Because comics offer themselves as a form of mythology which allows readers to see and understand themselves through the narratives, the study of how Black women are represented in comics provides commentary on the ideological perception of the role of Black women in American society and how that has changed or been reinforced over time. For this reason, Black women have taken the initiative to directly influence how they are portrayed, thereby creating a new renaissance in comic book creation.

Literature Review & Historical Significance

Superhero comics were created during the Great Depression as a means of understanding and expressing self through larger-than-life, heroic characters; these comics exist as a type of modern mythology, depicting heroes that occupy roles as contemporary counterparts to Greek and Roman gods. They serve as an easily accessible form of escapism and they present figures which simultaneously influence and are influenced by certain ideals of cultural society, thereby necessitating the importance of diverse racial representation. Comics tend to reflect the personal views of their creators, which have most often been white males writing for white consumers.
Therefore, the comics often demonstrated racial tensions through racist caricaturing of Blacks as a form of comic relief during times of racial stress in the United States.

When Blacks, especially females are present in early comics, they tend to be limited in roles of agency, most often falling into the constructs of the sidekick trope. Lothar is a male character who appeared in the 1934 series *Mandrake the Magician* by Lee Falk, which is earliest cited superhero comic series and was created by Lee Falk for his newspaper strip. Although he is presented as the prince of several tribes in his African homeland, he is cast as an unintelligent figure, speaking in inarticulate fragments, dressing in animal skins and appearing as an intentionally and notably less developed character than his white counterpart. As Chris Gavaler points out, Lothar, despite his royal stature, ironically chooses to live in the United States as an ambiguously slave-like servant to a white magician (Gavaler). Lothar is not the main hero, but rather a sidekick figure who is confined to servitude. Depictions of Blacks in this way were not uncommon at the time. These sentiments were carried over when Black women began to show up in superhero comics in the 1970s after a conspicuous absence from mainstream comics.

Prior to the 1970s, Black women were largely absent from the literature of superhero comics which evidenced a perceivable cultural stigmatization of Black women as well as a societal rejection of the notion that Black women possess meritorious attributes or conduct as superheroes do. When Black women began to emerge in superhero comics, there surfaced a noticeable pattern of Black women being represented similarly to Lothar, wearing animal skins, despite the fact that all other characters are dressed in modern clothing, for instance. An example of this is evident with comic book characters such as Nubia. As Deborah Whaley notes in her book *Black Women in Sequence*, “Nubia wears a tiger-print body suit adorned with a banana-leaf skirt, this conjuring up a mix of Josephine Baker and African primitivism” in contrast to a figure
like Wonder Woman who wears patriotic clothing, conjuring up imagery of the American flag in the same scene (100). There is a deep contrast between white women and Black women at large in superhero comic books. Another example of this can be seen in Superman’s girlfriend, Lois Lane #106, a very potent example of the positioning of white women as superior to Black women when Lois Lane turns herself in a Black woman and asks if Superman would marry her if she remained Black, to which she receives no response. This substantiates the prevalence of a separate but not equal mentality.

Also evident here is the caricaturing of the Black female. Caricaturing is outwardly exaggerating certain features in illustrative representations of a figure in a way that is understood to reflect the inward character. Black women during this era were caricatured as specifically African, hypersexualized beings with insatiable lust. This stems from what is known as the Jezebel stereotype, a name for an enduring stereotype that suggests that Black women are innately lascivious. The Jezebel stereotype is the product of slavery and it was used to justify forced sexual relations between slavers and their Black female slaves. The Jezebel figure is “depicted as a black woman with an insatiable appetite for sex. She was not satisfied with black men....[She] desired sexual relations with white men; therefore, white men did not have to rape black women” (Pilgrim par. 7). Black females are often caricatured to demonstrate their insatiable lust as scantily clad with unrealistic bodily dimensions emphasizing very large breasts, extremely small waists, protruding pelvic areas, and being placed in suggestive positions and angles that resemble sexual positions. This stereotype is evident in nearly all of the comic books in which Black women appear until the 1990s, when this became the norm for not just Black women but all women in comics.
By 1993, a small group of Black comic book fans decided they would influence the industry. They wanted to see themselves in comics. This led to the founding of Milestone Comics, the creators of Icon, a comic book series that featured a Black male as the main hero. This was truly a triumph for Blacks. However, this group of creators was all male. Consequently, there were instances in which they fell short in properly representing Black females. Arrell Jones stated in an AMC televised interview on the subject of Milestone Comics that “people should be able to tell their own story,” but Black women were not afforded this opportunity, even if Black males were the next best candidates to tell their story. In Icon, there is a negative stereotyping, however unintentional it may be, of the hero’s sidekick Rocket. Not only is she still not granted a lead role, but by the third issue she falls into the Baby Mama stereotype; she is pregnant with a child that the father does not want. Furthermore, she is poor, living in government housing (also known as “the projects”), and she is ultimately useless to Icon because she cannot continue her missions with him while pregnant. This unfavorable depiction defeats the purpose for which Milestone was supposedly created, to give Blacks a figure that they did not have to be ashamed of. It also demonstrates a major theme in my research, black female agency and the limit of social roles which Black women are allowed to occupy. This was a missed opportunity to provide a positive, successful role model to females of color. In contrast, Jennifer Ryan speaks to the strength of Rocket’s character in her article about Icon, stating that “the novel’s narrative progression depends on Rocket’s ability to analyze, record, and reframe Icon’s acts” (Ryan 920). While the story may fail in some areas, it does succeed in giving Rocket a voice. The story of Icon is told through her perspective, but she was still given a voice through the perspective of the males who wrote her character, which is, perhaps, why they fell short.
The issue that arose from this was no longer just a question of whether Black women were present in comics, but who gets to write their stories. This led to the new renaissance in Black comics in which Black women are now actively making changes in the comic book industry. Issues which once were written by White men are now being turned over to Black women to write their own stories. One such example of this is the latest *Ironheart* series by Eve Ewing, which features a young Black teenage girl who is a technological genius and is chosen and trained to take on the role of Iron Man. The renaissance extends beyond printed material into the limitless world wide web. Many Black women are taking charge and writing themselves in as lead characters, telling their own stories. These online outlets are often referred to as underground comics which are a source of liberation because there are no rules and restrictions on what can be published. Additionally, artists in these outlets have the potential to influence and reach far more viewers because a simple link can be shared from their page in moments without a subscriber ever having to visit a physical store to purchase the comics.

**Methodology**

The following exhibit is designed to function as an interactive platform, which guides readers through an erudite commentary on spotlighted appearances of Black women and how their characters are expressed in the superhero genre of comic books. The examples featured in the exhibit span across several years, ranging from the anomalous case of a Black Lois Lane in 1970 to newly created modern heroes such as the adroit young scientist Moon Girl, demonstrating a history of inadvertently offensive as well as notably favorable depictions throughout the history of superhero comics. The purpose of the research associated with this exhibit is to address the representation of Black females in superhero comics and analyze how this representation has evolved over time.
The research associated with this exhibit identifies and acknowledges the prevalence of three main themes, which manifest continuous development in the racial diversification of superhero comics: accessible roles of agency in society, ownership of voice, or, the right to tell one’s own story, and representation of the body.

Exhibit

*Storm*
These are two very different depictions of the well-known Marvel character, Storm. Storm, who was born as Ororo Munroe, first appeared in comics in 1975 and possesses the power to control the earth’s weather and release electricity from her body. She comes from a line of powerful African magicians and her most unique physical traits are her blue eyes and silver hair, which appear every five generations in her lineage. She is known by many consumers as a member of the X-Men since her recent roles in cinematic adaptations, but prior to being recruited by the mutant superheroes she fell in love with her equivalently famed male counterpart, superhero T’Challa, also known as the Black Panther. The examples here are two different versions of their first meeting, one from the 1980 Marvel Team-Up series issue #100 and the other from Jerome Dickey’s reimagined version of the same events in his 2008 Storm. There is a stark contrast between the two: in the Marvel Team-Up version, Storm saves T’Challa when she sees that he is in danger. Though the later version is written by a Black man, it is socially retrogressive. In the 1980s version of T’Challa and Storm’s first meeting, Storm rescues
T’Challa when she sees he is attacked by white men on the ground below. She flies in “like an eagle, flattening everyone but the warrior with hurricane-force blasts of air.” This depiction of Storm positions her as strong and unapologetically fierce, whereas in Dickey’s version, the circumstances of the encounter are reversed. She exclaims that the use of her power caused her to be afraid as the forces of storm and wind surrounded her. She is left in the arms of T’Challa after losing consciousness from the attacks. This Storm is less confident compared the first Storm. Although Dickey’s reimagined version is romantic and interesting, he changed the nature of Storm and in a way that was not necessarily the most beneficial with respect to his Black female audience.
Above are two different portrayals of Monica Rambeau, a New Orleans native with the super ability to manipulate and become any form of energy on the electromagnetic spectrum. The first example is from the 1985 version of Monica Rambeau debuting as Captain Marvel in *The Amazing Spider-Man Annual #16* and the second is Rambeau as Photon in *Marvel Divas* from 2009. In both instances, she is a figure that embodies social change. As Captain Marvel, she exuberates confidence, not presenting herself as inferior to anyone due to her sex or race. She is dressed well and wearing heels, ready for her next move at all times. Spider Man looks at her in great admiration of her beauty, confidence and physical strength. She is self-possessed and powerful in her own right. She stands feet spread apart as if she is owning her territory and will not back down in the face of any threat. As Photon, Rambeau is a businesswoman, an expansion of her role of agency; she boldly speaks out against inequality when she remarks, “You want to talk isolation? Try being a Black woman in this business.” This demonstrates her resilience and lack of fear to bring attention to large issues in the sociocultural structure of the nation. Despite
the social challenges and professional hardship she faces, she overcomes with skill and poise, accomplishing what she sets out to do, whether she is defeating her enemies or thriving in corporate America.
There is an interesting contrast between the different time periods in which these editions of Black Panther were written (1973/1974 and 2016). The women in the earlier editions of Black Panther from the time that Don McGregor was the writer were sexually objectified, a commonality of the blaxploitation era during which they originated. Sexual exploitation of the Black female body was characteristic of the era in which it was written. In Black Panther, the women are often seen as peripheral figures, falling into the constructs of sidekick figures. However, Malice (picture 3), although a villain, is very capable and powerful and not merely a sex object. She successfully infiltrates the royal palace and uses her powers and gives a real challenge to T’Challa and his companions. In the 2016 version which Ta-Nehisi Coates wrote, the women are seen as being very level-headed and more present in the forefront of the scenes. They symbolize a voice of reason, valuing intelligence over battle. They help to keep the men grounded mentally. While this could still be seen as acting peripherally, the roles of these women are very important to the success of the kingdom. The power of their intelligence is a great asset to Wakanda’s success.
Milestone Comics is the publisher of the series Icon from which these examples are taken. The company, established in 1993, was created by a group of Black men who wanted to see themselves as the heroes in the comics they were reading. For that reason, they were able to successfully create comics in which a Black man was the hero, but for the same reason there were instances in which they failed to positively highlight the roles of Black women and their rise above stereotypical expectations. The creators did do something unusual and powerful, however – they gave the Black woman a voice. The story of Icon is told through the young girl’s perspective, giving her the position of authority to tell how she essentially made Icon into a hero. On the other hand, she seems to aspire to nothing more than being a sidekick figure. She is satisfied and comments that because she is a sidekick, she is supposed to be naïve. By the third edition she falls into the Baby Mama stereotype, and is pregnant, contemplating abortion because she is too poor and too young to take care of the child. Her pregnancy keeps her down for a little while, but she eventually reappears and fights by Icon’s side as his handy helpmate.
This example is from *Superman’s Girl Friend Lois Lane* #106. In this narrative, Lois Lane is given an opportunity to write a story on what it means to be Black. She is self-motivated from the beginning with great confidence that her story will be so good, she should get a Pulitzer prize for it. She sets out for Little Africa, where all of the Black people live, and is immediately rejected by Blacks in the community who exclaim that they don’t like her because she is a “whitey.” Dejected, she asks her boyfriend Superman if he will use his special machine to change her from a white woman to a Black woman for 24 hours. He does so and she instantly becomes Black, with fuller lips and an afro. Despite the fact that all of the other Black women in the community are wearing modern clothes, she decides that she must change into different clothes, so she wears hoop earrings and a dashiki with a large African headwrap. By the end of the story, she asks Superman if he would still marry her if she could not change back and he gives the true answer to her question. The suggestion is that he would not. Meanwhile, the Black man that she saved and gave a blood transfusion while she was on her adventure wakes up, and Superman comments that if he still hates her with her blood in his veins, there may never be peace.
This issue was an attempt to deal with cultural guilt. It was written in 1970, shortly after the civil rights movement, when Blacks were just beginning to see hope of change in the laws to their favor. The Blacks in this issue are portrayed as having the mindset of hatred. They are hostile and unwilling to accept a white woman. Lois Lane turning into a Black woman did not solve any issues. This was a largely failed attempt at inserting representation of a Black female into the Superman narrative. Lois is still able to live as a white woman and earn her Pulitzer prize for being Black for a day if she so chooses.
This example features Misty Knight, a Black female superhero who is a strong and confident figure from her first appearance in 1974. She is a former NYPD police officer and is very capable of defeating her foes. Unfortunately, she loses her arm in a bomb explosion so, in the more modern example from 2008, Misty is given a bionic arm from Tony Stark. Still, her prosthetic arm does not make her the strong character that she is. In fact, she doesn’t know how to use it very well initially. Misty’s skills and mental fortitude enable her to fight fearlessly alongside her companions and overcome any obstacle she faces.
This example is from the 2015 series *Moon Girl and Devil Dinosaur*. These comics feature a young Black girl who is school-aged, so it is told from a very young perspective and appeals to young readers. This young character is able to be a contemporary positive role model for young readers who may not be mature enough to read some other content listed in this exhibit. This is a well-used opportunity to create a figure that young Black girls can see themselves as while they enjoy the story. Moon Girl is depicted as a brilliant young lady whose superpower is her intelligence. She is also an example of favorable caricaturing of a Black female as she is caricatured to look like a nerd. This caricaturing is not specific to her race but is used to express outwardly her inward intelligence.
Ironheart

Ironheart is a sassy young teenager who lost her father and best friend in a neighborhood shooting. She deals with the trauma along with other teenage stressors in addition to her daily work as superhero Ironheart. She, like Moon Girl, is able to serve as a positive role model for an adolescent audience. She is the definition of beauty and brains: beautiful, an engineering genius, and able to overcome the challenges that she faces with her unwillingness to back down even in the face of fear. Interestingly, her character has been turned over to Eve Ewing, a Black comic
writer, which is part of the new movement in which Black women are writing their own stories in the comic book ensuring that their stories are told as they should be.

*Shuri (Black Panther)*

This 2019 example features Shuri, the sister of T’Challa, also known as the Black Panther. She has served in her brother’s stead as the Black Panther when T’Challa was needed for other missions, but now she stars in her own series as the lead figure. She is a string female lead with intelligence (which has become a predominant characteristic of Black women in recent comics) and innovative skills, such as the ability to create tools using vibranium, which are extremely valuable to the kingdom. In contrast to previous issues of the *Black Panther* series, Shuri does not serve her brother in the background, nor is she a sex object. She is a relatable figure for young modern readers and is capable of ruling the entire kingdom of Wakanda in her brother’s place.
Discussion

This research has led me to new realizations of the evolving representations of Black women in the genre of superhero comic’s visual narratives. I have also been relieved to realize the hope that is present now more than ever before for positive representation as Black women are taking the lead to tell their own stories and as depictions of Black women in general in mainstream comics has been improved. The positive representation is now beginning earlier with characters like the young school-aged science genius, Moon Girl (also hailed as the most intelligent girl in Marvel) and others. As a future librarian, I take great pleasure in knowing that there are more accessible forms of comics which will not represent women of color in a way that is shameful. As the years progress, I see a positive trend in the right direction and young Black girls in the years to come will be able to see themselves in successful characters that they can enjoy reading about.
Works Cited


Conflict Interactions: Nonverbal Behaviors Essential in the Longevity of Romantic Relationships

By: Marcos Lopez

Abstract

The majority of research previously conducted has shown the importance of nonverbal communication in romantic relationships. These studies have identified a positive correlation between the use of positive nonverbal behaviors and overall relational longevity and satisfaction. However, few studies have looked at the connection between nonverbal behaviors, relationship stages, and conflict interactions. The current study aimed to learn more about nonverbal behaviors that lead to conflict interactions escalating or deescalating and their impact on the longevity of short-term and long-term relationships. In order to understand the complex nature between conflict interactions, nonverbal behaviors, relational longevity, and relationship stages, a semi-structured interview consisting of open-ended questions was employed. In addition, interviews were transcribed to derive common threads from participants’ experiences. Results revealed themes associated with positive nonverbal behaviors, negative nonverbal behaviors, and characteristics that define conflict interactions. Exemplar statements were provided to highlight these themes. Lastly, several limitations were observed such as interviewing only one individual from the romantic relationship and the lack of diversity in the individuals interviewed. (Keywords: nonverbal communication, conflict, relationship stages, haptics, proxemics, kinesics.)

Introduction

For many individuals, the longevity of a romantic relationship is determined by the amount of time and relational maintenance that each partner is willing to input. For the purpose of this study, a romantic relationship is defined as an intimate relationship between two individuals. There are two different stages of a relationship that will be looked at in this study. These stages are short-term relationships and long-term relationships. A short-term relationship includes casual dating and exclusively dating and is characterized by a period of introduction, where two individuals determine their overall compatibility. In contrast, a long-term relationship includes cohabiting and married dyads and is
characterized by relational maintenance behaviors to ensure longevity. One factor that can impact relational longevity is conflict. Conflict involves the interaction and interdependence between two individuals concerning incompatible goals. Relationships vary in duration; not all short-term relationships progress to long-term relationships. An accurate recognition and implementation of nonverbal behaviors contributes to the overall longevity of the relationship. According to Prinsen and Punyanunt-Carter (2010), when asked about nonverbal behaviors females placed a greater emphasis on these behaviors compared to males. The majority of the research previously conducted has focused on nonverbal behaviors in a particular relationship stage using undergraduate dyads as participants. Thus, I advance three research questions:

RQ1: What positive nonverbal behaviors do people in romantic relationships engage in that promote the romantic relationship?

RQ2: What negative nonverbal behaviors do people in romantic relationships engage in that harm the romantic relationship?

RQ3: What are some characteristics that define conflict interactions?

**Literature Review and Rationale**

**Defining Conflict**

Individuals think about a prototypical conflict as an aggressive interaction involving nonverbal behaviors such as angry facial expressions and/or harsh voices; however, conflict is not always expressed aggressively. Sometimes a calm interaction ensues over a disagreement where individuals either collaborate or compromise on an issue. Use of these particular conflict strategies, i.e. collaboration and compromising, enhance relationship functioning. These two scenarios bring to attention an interesting idea: conflict is an unavoidable part of life especially for those living together in dating, intimate, and martial relationships (Lulofs & Cahn, 2000). Second, nonverbal communication, such as facial expressions, play a key role in conflict interactions. These nonverbals are discussed in more detail later in this review of literature.
For the purposes of this study, conflict is defined as an interpersonal process that occurs between two interdependent people expressing disagreement regarding incompatible goals, i.e. “whenever the actions of one [romantic partner] interfere with the actions of another” (Hocker & Wilmot, 1998; Feeny, Noller, Sheehan, & Peterson, 1999, p. 365). This incompatibility varies in degree of strength from a persistent, defining feature that harms the longevity of a given relationship to a non-persistent and easily resolved feature that has no noticeable effect on the essence of a given relationship (Cahn, 1992). In addition, incompatibility must be expressed for a conflict to have really occurred, otherwise it remains only a perception (Hocker & Wilmot, 1998).

Overall, it is important to note that conflicts can occur at any time. As a result, conflict strategies are a powerful tool for an effective response to a conflict interaction. Identification of one’s own conflict strategy and usage of an appropriate conflict strategy during a particularly heated conflict can create an enduring romantic relationship. These conflict strategies are discussed in great detail in the following section.

**Conflict strategies.** Conflict can have many benefits when romantic partners learn to manage it appropriately and embrace its inevitable nature. Conflict strategies refer to “general approaches used to achieve an interaction goal” (Canary, Cupach, & Messman, 1995, p.10). Each individual has a unique strategy that reflect one’s unique wants, needs, and values. It is important to note that no one strategy is inherently better; thus, learning one’s own conflict strategy does not mean subscribing to that particular strategy. Some individuals may habitually adopt a particular strategy with their romantic partner during a conflict interaction. In this instance, these individuals’ approach to conflict is classified as fairly stable. However, within a given conflict interaction, individuals use multiple strategies that vary from conflict to conflict.
Five basic strategies for managing conflict have been uncovered by researchers: competing, collaborating, accommodating, avoiding, and compromising. These conflict strategies are discussed below in greater detail.

**The competing strategy.** Individuals using a competing strategy approach a conflict interaction in an assertive and uncooperative manner (Blake & Mouton, 1964). When competing, individuals attempt to control the conflict situation. These individuals tend to pursue their own personal goals, sometimes at the expense of their romantic partner by engaging in direct competition with one another (Papa & Canary, 1995). Some common strategies associated with competing include name-calling, personal attacks, and threats (Hocker & Wilmot, 1998). As a result, these individuals are more focused on substance, i.e. winning an argument, than the romantic relationship.

**The collaborating strategy.** Individuals using a collaborating strategy approach a conflict interaction in an assertive and cooperative manner (Blake & Mouton, 1964). When collaborating, individuals attempt to find an integrative solution to a problem/disagreement that addresses the concerns of both parties while fully satisfying both their own needs and the needs of their partners. As a result, these individuals tend to value taking time creating longstanding outcomes free from criticism leading to high levels of relational functioning.

**The accommodating strategy.** Individuals using an accommodating strategy approach a conflict interaction in an unassertive and cooperative manner (Blake & Mouton, 1964). This particular strategy is known for its element of self-sacrifice as it does not enable both individuals to reach their goals and desires. Sometimes accommodating maintains relationships; however, dissatisfaction develops when individuals choose to accommodate on a really important issue in favor of pleasing their partner creating a chilling effect (Cloven & Roloff, 1993). This chilling
effect serves to erode relational satisfaction over time; so, accommodating should only be used when dealing with an issue that holds little personal importance.

**The avoiding strategy.** Individuals using an avoiding strategy approach a conflict interaction in an unassertive and uncooperative manner (Blake & Mouton, 1964). This strategy is characterized by an avoidance, withdrawal, denial, or delay of conflict interactions. Some common strategies associated with avoiding include denying or minimizing the problem, making irrelevant remarks, trying to change the topic, or giving the silent treatment (Hocker & Wilmot, 1998).

**The compromising strategy.** Individuals using a compromising strategy approach a conflict interaction in an assertive and cooperative manner. Individuals who use a compromising strategy are concerned about goals and relationships as one partner ends up sacrificing some of their goals and needs to satisfy some of their partner’s needs (Kilmann & Thomas, 1977; Rahim, 1986).

**Relationship Stages**

An intimate relationship, e.g. a romantic relationship is defined as an interpersonal relationship between two or more individuals characterized by an enduring interdependence, emotional and/or physical closeness, and mutual compatibility. Humanity’s universal need to belong and to love is satisfied with the formation of an intimate relationship. Thus, the development of a romantic relationship follows a fairly standard protocol where individuals signal interest, via flirting and use of courtship behaviors, to a declaration of commitment to one another. Romantic relationships were defined in short-term, casual dating and exclusively dating, and long-term, cohabiting and married couples.

Each relationship stage has its own specific set of challenges and rewards. At each stage, there is often a decision to move forward or to terminate the relationship. Past research has studied the differences between gender and relationship stages, based on nonverbal perceptions and nonverbal affectionate
communication and support (Prinsen & Punyanunt-Carter, 2010). For the purposes of this paper, a primary focus is given to short-term relationships; however, long-term relationships were also analyzed to provide an effective comparison of how conflict is approached at each stage. As will be described later, nonverbal communication plays a key role in a given conflict interaction. Thus, the longevity of romantic relationship depends on the accurate recognition of nonverbal cues, i.e. vocal tones and withdrawing behavior, to determine whether a conflict is managed successfully or escalates. It is important to note that conflict is present during both relationship stages.

An understanding that romantic relationships lie on a continuum where one progresses from short-term commitment to long-term commitment serves to better help individuals navigate common relational issues that arise in a romantic relationship. Each of the two relationship stages used in this study are described below.

**Short-term relationships.** This particular relationship stage is characterized by a period of introduction where two individuals have the potential to develop an intimate romantic relationship. During this stage, individuals determine overall compatibility by getting to know each other. It is important to distinguish that this relationship stage does not always lead to long-term commitment. Quite often casual dating can lead to a relatively short-term romantic relationship that varies in duration from a few days to a few months. Short-term relationships are characterized by individuals’ romantic interest for one another, i.e. a specific attraction that involves physical attributes such as outward appearance, body type, personal interests, and personality traits. However, romantic interest from both individuals is not always apparent. If one individual shows no romantic interest towards the other then the initial interaction will not result in the formation of an intimate relationship.

According to Farris, Teat, Viken, and McFall (2008), males tend to misperceive female’s platonic intent for sexual intent. On a similar note, Place, Todd, Penke, and Asendorpf (2009) concluded that male romantic intention was easier to determine than female romantic intention. Additionally, gender differences have emerged concerning flirting interactions as females tend to regard these interactions as more relational and fun compared to males (Hennigsen, 2004). Oftentimes, these misperceptions can lead
to an awkward initial interaction resulting in no development of an intimate romantic relationship. Such findings could explain why females adopt a more reserved approach when finding a potential mate. This longer duration serves to determine romantic or platonic intent as there exists an additional risk for females to find a mate with adequate evolutionary benefits (Place et al., 2009).

Overall, females tend to mask their romantic intent during an initial interaction with a male due to the potential long-term consequences of choosing the wrong mate. According to Todd et al. (2009, p. 25), “women behave more covertly and ambiguously during interactions with the opposite sex” when faced with this possible scenario. An example of a long-term consequence that a female could face is the potential burden of raising a child from a failed short-term relationship whereas males do not have to worry about this potential parental commitment. Thus, a general statement can be generated: males tend to misinterpret the intention of females, i.e. sexual or platonic intent, and females tend to be more apprehensive during an initial interaction with a male (Farris et al., 2008; Place et al., 2009). This statement can help explain why many individuals involved in short-term relationships, e.g. casual dating, never progress to a long-term relationship.

Short-term relationships involve an extended romantic stage where partners feel a sense of peace and security concerning the longevity of the relationship; thus, few conflict interactions occur within the relationship. However, it is important to note that there are exceptions to this statement. Once individuals determine that no mutual compatibility exists, i.e. there are no shared values, thoughts, and feelings, then both individuals must come to the conclusion that there is no future together. However, short-term relationships can progress towards long-term commitment.

**Long-term relationships.** This particular relationship stage is characterized by relational maintenance behaviors such as the use of constructive responses and relationship-protective behaviors to ensure the longevity of an intimate romantic relationship (Doohan, 2007; Samp & Monahan, 2009). Some basic characteristics that define long-term relationships include loyalty, commitment, vulnerability, love, fulfillment, and compatibility. During this stage, individuals experience drastic changes in a short amount of time; oftentimes, these changes can occur multiple times. It important to mention that this relationship
stage involves the intertwining of individuals’ lives. As a result, conflict interactions vary in intensity from completely mundane issues that are easily resolved to serious issues that are harder to resolve. However, the strong commitment held by romantic partners leads to the use of positive maintenance behaviors to ensure the longevity of the relationship in the face of a conflict interaction.

As previously mentioned, short-term relationships, e.g. casual dating, can progress to long-term relationships if a female sees a long-term evolutionary benefit in her chosen significant partner (Place et al., 2009). In another study, a correlation between the use of nonverbal behaviors and duration of a relationship as well as a correlation between relational satisfaction and longevity was observed; however, the inclusion of alcohol as an additional factor influenced relational satisfaction (Samp & Monahan, 2009; Spott, Pyle, & Punyanunt Carter, 2010). Overall, relationship maintenance is required to establish and maintain long-term relationships. These long-term relationships are characterized by a greater commitment between two individuals as well abandonment of unhealthy and unrealistic expectations. Other factors such as the use of certain negative nonverbal behaviors can severely affect the longevity of an intimate relationship. Specific nonverbal behaviors, both positive and negative, will be discussed below.

**Nonverbal Behaviors**

As mentioned earlier, the severity of and the nonverbal behaviors used during a conflict interaction determine the longevity of a given relationship. Nonverbal communication can be defined as “that aspect of the communication process that deals with the transmission and reception of messages that are not a part of the natural language systems” (Moore, Hickson, & Stacks, 2014, p. 5). Different types of nonverbal behaviors, discussed below, convey specific messages during an interaction.

In romantic relationships, the use of positive nonverbals and the accurate recognition of negative nonverbals are characterized by an increase in relational satisfaction and longevity (Spott et al., 2010; Yoo & Noyes, 2016). In other words, learning to recognize a partner’s nonverbals can lead to better conflict management. For example, partner A can use positive nonverbals in an attempt to counteract the negative nonverbals of partner B and stop further escalation of the conflict. This action could produce a
form of reciprocity within the conflict interaction. Reciprocity “occurs when a person responds to another
person’s behavior by engaging in similar behaviors” (Moore et al., 2014, p. 337). Thus, partner A’s
positive nonverbals could result in partner B engaging in positive nonverbals and vice versa. According to
Guerrero and Floyd (2006), satisfying romantic relationships are characterized by frequent positive
reciprocity and infrequent negative reciprocity.

Some examples of nonverbal behaviors present in intimate relationships include the use of touch,
distance, listening, and facial expressions (Bodie & Villaume, 2008; Doohan, 2007; Farley, 2014). For the
purposes of this study, nonverbal behaviors were grouped and analyzed as follows: (1) haptics and
proxemics, and (2) vocalics and kinesics.

**Haptics and proxemics.** The term haptics refers to any form of interaction involving touch.
Touch provides a visualization of the seriousness of a relationship. Females involved in short-term
relationship, e.g. casual dating, who engaged in tactile contact where more likely to receive greater
interest from a male (Guéguen, 2010). Thus, these females are likely to progress beyond the short-term
relationship stage. In contrast, couples in the disengagement process used more withdrawal behaviors and
less handholding (Knapp & Vangelisti, 1996).

Touch is a significant component in relationships as it serves to communicate strong,
instantaneous messages of comfort, commitment, and inclusion between romantic partners. The use of
tactile contact can enhance the attractiveness of the toucher (Guéguen, 2010). Ultimately, touch serves to
communicate affection and intimacy amongst romantic partners as well as unity. In addition, distance is a
good indicator of relational closeness. Proxemics is used to refer to the use of space and the arrangement
of objects. For the most part, an intimate distance is reserved for romantic relationships. During this
intimate distance, tactile closeness is expressed in the form of hugs, handholding, kissing, touching a
partner’s arm or leg, face touches, and leaning against a partners’ shoulder. Spatial closeness is expressed
in an open body position and face-to-face position.

According to Bodie and Villaume (2008), couples who held hands at a more intimate distance
were perceived as more intimate than those who held hands at a more personal distance. Based on these
results, individuals in long-term relationships would likely engage in handholding at a personal distance compared to individuals engaged in a short-term relationship. Thus, one would expect individuals engaged in conflict to hold hands at a more personal distance and individuals not engaged in conflict to hold hands at an intimate distance. The type of handholding used by romantic partners is indicative of the power dynamics within the relationship. Partners engaged in the coalescent style of handholding where both partners equally displayed intimacy was shown to be ideal handholding type for a healthy relationship (Bodie & Villaume, 2008).

Vocalics and kinesics. The term vocalics refers to the use of vocal elements such as loudness, tempo, rate of speech, and tone. According to Farley, Hughes, & LaFayette (2013), an individual possesses various vocal profiles when speaking to a friend compared to their romantic partner. As a result, “we have a tendency to mirror the postures and nonverbal behaviors of our interaction partners” (Farley et al., 2013, p. 131). Ultimately, relational longevity is dependent on how an individual and their partner use vocal tone during a conflict interaction. Soft voices are ideal as it draws romantic partners closer together and deescalates a major disagreement.

The term kinesics is related to the movement of the body and interpretation of body language. Kinesics includes messages sent by an individual’s body, e.g. gestures, posture, body movement, an individual’s face, e.g. facial expressions, and an individual’s eyes, e.g. eye contact and eye movement. Farley (2008) found that males in a committed relationship use fewer smiles and touches while in the presence of an attractive female and their significant other. This lack of facial expressions and touch is indicative of the level of commitment shared between partners. Based on these findings, one would expect some control by individuals in long-term relationships when it comes to returning unwanted advances. Eye contact plays an important role in communicating interest in or love for another. In the context of relational longevity, individuals who wish to develop a short-term relationship or maintain a long-term relationship often engage in behaviors such as smiling and looking directly at the individual of interest. During a conflict, knowledge of these nonverbal behaviors could help stop a conflict from further escalating. In the following section, common nonverbals observed during conflict are discussed.
Nonverbal behaviors involved in conflict. When individuals disagree, the nonverbal behaviors used play a crucial role in determining whether a conflict escalates or deescalates. As previously mentioned, conflict is characterized as a serious disagreement regarding incompatible goals. During a conflict interaction, the most effective conflict strategies are collaborating and compromising while competing and avoiding strategies are ineffective and uncooperative. According to Newton and Burgoon (1990a), nonverbal behaviors associated with collaboration include relaxed posture, soft vocal tone, slow speech rate, and lower vocal pitch. Based on the definition of compromising, expected nonverbal behaviors for individuals using this strategy would be related to engagement, e.g. more eye contact and turn-taking indicators, and pleasantness, e.g. smiling. These two strategies including the nonverbal behaviors are particularly useful when trying to deescalate a conflict. Individuals using a competing strategy are likely to use loud/sharp vocal tone, animated gestures, head shaking, and fast vocal rate (Newton & Burgoon, 1990a). Last, the avoiding strategy is characterized by decreased eye contact and silence. These two strategies including the nonverbal behaviors are particularly harmful when trying to deescalate a conflict.

Low relational satisfaction is reported by romantic partners who engage in negative listening behaviors while in the presence of an outside third-party (Doohan, 2007). Negative listening behaviors involve individuals preserving face, their personal image. In other words, “spouses may support or discredit the face of their partners through their nonverbal listening behaviors” (Doohan, 2007, p. 26). The study consisted of interviews resolving a fictitious marital issue where the majority of the interviews resulted in one individual using negative facial expressions against the other significant other, via a scowl, to indicate disagreement (Doohan, 2007). Previous research aimed to discover an increase in relational longevity as romantic partners used less negative nonverbals; however, researchers encountered a lack of significant findings to prove their hypothesis true (Spott & Punyanunt-Carter, 2010). Spott & Punyanunt-Carter (2010) did find a relationship between the use of nonverbal behaviors and duration of a relationship.
Alcohol consumption can influence the nonverbal behaviors of males, e.g. facial animation, body movement, and rate of speech, during conversions concerning a hypothetical infidelity (Samp & Monahan, 2009). According to researchers, alcohol brings out the dark side of relationships because “partners of drinkers may experience more uncertainty, decreased relational satisfaction, and may question the future of their relationships” (Samp & Monahan, 2009, p. 207). The combination of alcohol and negative nonverbals during a short-term relationship should in theory result in less longevity among the two romantic partners. An awareness of these behaviors can be a powerful tool in recognizing the potential dangers alcohol can have on a relationship during a conflict.

The current research aims to discover whether or not recognition of nonverbal behaviors and accurate identification of these nonverbals leads to an increase in relational longevity, via the escalation or deescalation of a conflict interaction.

Method and Procedures

This particular study is centered in the interpretive paradigm. For interpretive scholars, the purpose of research is to understand what human action means to people (Baxter & Babbie, 2004). This paradigm was used to gain a deeper understanding of the experiences of the participants. In this study, I examined the nonverbal behaviors that affect conflict in romantic relationships and how recognition of these nonverbal behaviors either promote or harm the longevity of said relationship. By centering my study in the interpretive paradigm, I was able to ask detailed questions concerning contextual information and message interpretation, interpret and contextualize said messages and information received from participants currently involved in a romantic relationship, and derive themes from participants’ experiences engaging in conflict with their significant other.

Participants
I chose participants who met the following criteria: participants had to be at least 18 years old, had to be currently in a romantic relationship, and the romantic relationship had to be at least 6 months old. All participation for this study was voluntary. Participants were recruited via convenience sampling, written announcements, in-class announcements, and snowball sampling approved by the university’s institutional review board (IRB). Interviews were conducted until theoretical saturation was reached instead of relying on a set number of interviewees. Researchers reach theoretical saturation when all categories are well-developed and further interviews add little new information to the existing conceptualization (Corbin & Strauss, 2009). Theoretical saturation was achieved within the first 14 interviews; however, further interviews were conducted to develop a stronger analysis and credible data set.

I interviewed a total of 17 individuals from three public universities in the Southeast. Individuals averaged 20.29 years of age with a median of 22 years of age and a range of 20-35 years of age. Twelve individuals identified as female and 5 identified as male. Fifteen individuals identified as being in a six month or older romantic relationship and two individuals identified as currently single. Eleven individuals identified as Caucasian, 3 identified as African American, 2 identified as Hispanic, and 1 identified as being of mixed ethnicity. The longest romantic relationship was identified at fifteen years while the shortest romantic relationship was identified at six months. A range of 1-10 for the number of romantic relationships that individuals have been in was observed.

**Data Collection**

Each individual interview lasted between 30 and 45 minutes for an average of 39.7 minutes and was conducted in a location of preference and convenience to the participant. Each participant was assigned a pseudonym rather than using their real names to ensure confidentiality. In this study, I used in-depth, semi structured interviews to obtain information concerning the nonverbal behaviors used by individuals while engaged in conflict with their
romantic partner. In these interviews, I encouraged participants to describe and explain their experiences with their significant other using their own words and phrases. Although an interview protocol guided the interview process, the use of follow-up questions provided a sense of flexibility from the protocol by allowing further probing into unforeseen insights that contributed to depicting a fuller picture of the nonverbal behaviors used during conflict (Rubin & Rubin, 2005). The semi-structured nature of the interviews allowed me to derive meaning and themes related to my two research questions.

The interview protocol was created based off Rubin and Rubin’s (2005) guidelines and utilized open-ended questions to capture an accurate representation of the nonverbal behaviors that participants use while engaged in conflict. Demographic questions such as age, gender identification, and ethnicity were asked. In addition, I asked participants questions about differences and similarities between their current and past romantic relationships, questions about specific nonverbal behaviors used during conflict, and questions concerning conflict such as “describe what conflict means to you.”

Data Analysis

Data for the present study were organized into 17 individual interview transcripts created from an automated audio transcription software. Using Smith’s (1995) qualitative thematic analysis guidelines, I identified emerging themes while developing detailed bulleted lists for each interview. The bulleted lists included detailed explanations of emerging themes as well as counts of repetition observed in the various interviews conducted. I listened to the audio twice: initially to obtain a general understanding of the messages I received from participants as well as to ensure that the audio transcription software had accurately transcribed the interviews and
subsequently to note emerging themes involving nonverbal behaviors participants used during disagreements with their romantic partner and how conflict was carried out in said dyad.

Themes that recurred, repeated, and were forceful were derived based on Owen’s (1984) method of interpretation. Themes were defined as recurrent when “at least two parts of [the audio] had the same thread of meaning, even though different wording indicated such a meaning” (Owen, 1984, p. 275). Repetitive themes were defined as those that had “repeated use of the same wording” (Owen, 1984, p. 275). Last, forceful themes had “vocal inflection, volume, or dramatic pauses” which distinguished it from “other locutions” (Owen, 1984, p. 275). I utilized these three identifiers to group themes that emerged from my interview transcripts into categories that addressed the research questions and looked for connections to how recognition of specific nonverbal behaviors affects the nature of conflict in romantic dyads. Once themes were identified and theoretical saturation was reached, I created a list of themes and matched each theme with direct quotes from the interviewees that captured the essence of each theme.

Verification

Several common validation strategies were employed to meet interpretive paradigmatic conventions. First, I recorded each interview using a digital voice recorder and created detailed bulleted lists and notes. Second, I kept conducting interviews and analyzing data beyond theoretical saturation being reached. Next, the validity of my results was evaluated using member checking via emailing summaries of finding and themes to all participants to ensure that the findings were an accurate representation of their individual experiences (Creswell, 2007). Six participants reviewed and agreed with the constructed themes. Last, evidence for my findings was provided through the use of rich direct quotes pulled from interviews.
Results

In this section, I define common threads or themes that serve to answer the research questions outlined in the introduction. For easier comprehension, exemplar statements were provided to illustrate how nonverbal behaviors affect the longevity of romantic relationships during a conflict interaction and some common features of conflict interactions.

In response to RQ1, I identified three positive nonverbal behaviors that promote the romantic relationship during a conflict interaction. These themes include positive nonverbals involving (a) touch as a signifier of conflict resolution, (b) the use of proximity and orientation to indicate vulnerability/closeness, and (c) the use of facial expressions and eye contact to invite discussion. In response to RQ2, I identified two negative nonverbal behaviors that harm a relationship during a conflict interaction. These themes include negative nonverbals involving (a) touch as a signifier of conflict escalation and (b) physical distance representing emotional distance. Last, in response to RQ3, I identified two characteristics that define conflict in romantic relationships. These themes involved (a) the necessity and unavoidability of conflict and (b) the duration of a typical conflict.

In all 17 interviews at least one of these common threads was present with multiple threads being linked to any one interview. These threads were consistent for all participants interviewed. Each thread or theme is discussed in turn in the following sections below.

Positive Nonverbal Behaviors

Touch as a signifier of conflict resolution. When it comes to affection in romantic relationships, individuals who engage in physical affection, e.g. touch, tend to resolve conflict interactions easier. Acceptance of particular haptic cues signify a willingness to communicate constructively about a conflict. Some common haptic cues noted by participants include:
handholding, kissing, touching a partner’s arm or leg, face touches, and leaning against a partner’s shoulder. In addition, touch serves as a significant reassurance that one is actively listening to what is being verbally said. This statement is supported by Caitlyn, a 22-year-old Caucasian female:

Usually I’ll use touch to signal that the conflict is over or that I heard what he said, even though I didn’t agree…now I have a better understanding [of the issue]. So just depending on that I could like put my hand on his arm or something to convey that I heard everything he said.

Caitlyn mentions that she uses touch to not only decrease the severity of a conflict interaction but also to increase consideration of her own needs and desires as well as the needs and desires of her boyfriend. Additionally, touch functions as a love language or how an individual expresses their love to a significant other. The importance of touch as a love language did not go unnoticed to Anisa, a 22-year-old female in a long-term relationship:

I feel like he’s very like physical touch…his number one [love language] was physical touch and it’s not even like in a sexual sense, it’s just like a hand being held or he likes if I just like scratch his back or whatever, like something like that. But that’s usually my signal is when he will extend that hand out to me. Like, I know that what he wants to say, he can’t find the words for, but that look and that touch, reassure me that he’s there, he understands what I’m trying to get at because I’m a very verbal person.

Anisa found that touch served as a signifier of conflict resolution for her fiancé; thus, she learned to respond well to his love language. She understands that touch for him is used to illustrate that he is listening to her as well as used to illustrate his willingness to talk about a relational disagreement. Since her boyfriend is a very touch-orientated individual, she initially goes for his hand then proceeds to his knees when attempting to calm her boyfriend down. Ultimately, his willingness to deescalate the conflict is seen by an acceptance of the touch. This action is followed by a reciprocity of haptic cues as he goes for the knees then proceeds to rub her hand in an attempt to nonverbally communicate his desire to resolve the particular disagreement. Last, Anisa explains that her boyfriend does not immediately go for her hands unless otherwise welcomed by her for fear of further escalating the conflict.

Some individuals in romantic relationships find that a combination of haptic cues and proxemic
cues are efficient in deescalating a conflict interaction. This combination of nonverbal cues ensures that touch occurs at a more intimate distance rather than a personal distance. Nicole, a 35-year-old female, reflects on her long-term relationship:

I don’t really think about nonverbals when I’m trying to deescalate [a conflict]. I guess I just kind of walk up and put my arms around him almost like, okay, it’s enough like let’s just stop for a second…Sometimes you can kind of feel when somebody releases the stress, sometimes it’s kind of like that and he hugs me back and sometimes he’s not done with the conversation or vice versa.

Nicole believes that touch serves to show love and connection between two interdependent individuals. Her boyfriend uses gentile touches, such as snuggling and kissing her on the forehead, to offset the angriness of a conflict interaction whereas she prefers to lay near him or on him to show physical and emotional connection. For Nicole, it is important to just be proximally close to another, whether that be lying next to each other or laying her head on his lap, as a conflict nears deescalation. As mentioned by Caitlyn, Anisa, and Nicole, touch serves multiple purposes within a romantic relationship, such as acknowledgement that one partner is listening to what the other has to say and its role as a love language to communicate togetherness, in the deescalation of a conflict interaction.

Proximity and orientation indicate vulnerability and closeness. Being in close proximity with one’s romantic partner indicates a certain readiness to resolve a conflict. Physical proximity is central to romantic love as it serves to indicate some level of vulnerability, closeness, and trust. By adopting a direct body orientation, this promotes face-to-face communication between two individuals. This position reduces distraction and allows romantic partners to see each other’s facial expressions. This statement is supported by Caitlyn:

I want to make sure that I face him and that he knows that he has my attention so he knows that I’m not mad…If we’re not close when [the conflict] beings, he usually gets really close at the end of a discussion. If he wants to indicate that everything’s okay or he’s not upset with me then he’ll make it a point to move from our original positions and closer to me.

For Caitlyn, her boyfriend’s use of proxemic cues serve to initiate conflict resolution as it validates her willingness to openly discuss the disagreement and come to a shared understanding. In other words,
Caitlyn and her boyfriend develop a mutual orientation as the conflict is ending that communicates relational intimacy.

Vulnerability can also be indicated through the use of proxemics. Height plays an important factor when engaging in conflict deescalation at a personal distance as it creates a power imbalance; thus, it is recommended to get on an equal level, in terms of height, to ensure that no one partner has an advantage over the other during a conversation. In addition, an open body position is recommended as it leaves the body accessible by removing any barriers between individuals. This idea of romantic partners being at equal height is supported by Anisa when describing how her partner responds to her open body position:

I think it depends on the conflict itself…sometimes he’ll just stonewall and he’ll just roll his eyes…depending on what it is but if it’s something that’s really serious…he usually gets at eye level with me. He’s 6’2 and I’m 5’5 so he'll like come to meet my eye level and either he’ll pull me down and like sit me down on the couch and look me in the eye to be like, okay, tell me what’s really bugging you.

Here her boyfriend recognizes that his physical height is causing a power indifference; thus, he decides to decrease his height, removing the barrier, to ensure that he makes the conflict resolution equal for both parties. In a different scenario, Anisa’s boyfriend starts off by sitting at one end of the couch then her partner proceeds to scooch his way down; thus, he decreases the physical distance and invites conversation. According to Anisa, “he does tend to get closer when he’s coming down from [a conflict].” When this willingness to resolve a conflict occurs, she responds by not crossing her arms while sitting and using the openness of her body to indicate an acceptance towards his perspective on the disagreement because her boyfriend will likely respond in a similar manner and allow her to share her own perspective on the conflict.

**Facial expressions and eye contact invite discussion.** During a conflict deescalation, individuals tend to be more aware of their facial expression and eye contact and how those nonverbal cues are directed at their significant other. For example, a relaxed or neutral face shows no defensiveness and aggressiveness; thus, it is best recommended to use relaxed facial expressions when deescalating from a
conflict. On a similar note, direct eye contact combined with a relaxed, neutral face shows a willingness to engage in dialogue and resolve a conflict. This statement holds true when Nicole states, “I don’t have an angry face. I don’t have an upset face. I’m just trying to communicate that I’m over it. Like, let’s just stop fighting.” For Nicole, a relaxed face conveys a certain urgency to stop fighting and communicate about the conflict. In addition, she goes on to state that her partner insists on direct eye contact being used when resolving a disagreement. For both individuals, eye contact is an indicator of conflict resolution as both perceive the same message from this particular nonverbal behavior.

Direct eye contact can also communicate that one is listening and not just hearing what their significant other has to say concerning the conflict interaction. This communicative act can be nonverbally indicated when one nods their head in agreement or at appropriate times during conflict deescalation. The goal as Caitlyn puts it is to “make eye contact but not in a startling way” so as to scare away your partner, i.e. a relaxed or neutral face. A great example of eye contact and facial expression being used effectively comes from Anisa when she describes how these nonverbal cues are used:

I’ll look you in the eye when in conflict, especially, because I’m usually so serious about it and so in depth with it and he’ll look me back in the eye but if it’s something he doesn’t want to talk about he won’t make eye contact…but if he admits that he’s in the wrong, he’s very straightforward and he’ll make eye contact and acknowledge it…there’s no furrowing at the brow. There’s no tension, jaw tension or anything like that, it’s just a calm, relaxed face.

In this situation, Anisa’s boyfriend has a relaxed face when he unfurrows his brow and he unclenches his jaw while Anisa uses direct eye contact with her boyfriend to communicate a certain willingness to resolve the conflict. Ultimately, it is this mutual understanding between two romantic partners that leads to a faster conflict resolution.

Negative Nonverbal Behaviors

**Touch as a signifier of conflict escalation.** A lack of physical touch serves to communicate one’s unwillingness to resolve a conflict, i.e. prevent further escalation, and creates an emotional disconnect between romantic partners. This observation is validated by Nicole when she states, “I don’t want you to just not look at me. I don’t want you to even touch me. Like I’m angry with you…what are
you doing thinking that it’s okay to reach out and put your hands on me.” Nicole proceeds to mention that there exists a mutual consensus between the two of them that touch is not welcomed during a conflict escalation. In addition, haptic cues can be accompanied by proxemic cues as illustrated by Ariel, a 21-year-old Caucasian-Hispanic female, when describing her boyfriend: “He becomes the smallest little puppy…he just melts and makes little eye contact, a little pouty kind of sulky looking…and gets a little smaller in himself.” Ariel goes on to mention that her boyfriend is a touch-orientated individual; thus, a lack of touch and becoming smaller serves to indicate his emotional disconnect with her that allows the conflict interaction to continue escalating as Ariel becomes more heated and snarkier.

Normally, touch communicates affection in romantic relationships; thus, individuals who refuse to touch find it harder to resolve a conflict interaction. This statement is supported by Trevor, a 22-year-old Caucasian male: “For me, when I’m trying to comfort…I try to give it through touch so if I’m not giving touch that’s me being standoffish and not trying to deescalate [a conflict].” Trevor goes on to state that he would rather have some personal space rather than intimate space between him and his partner during conflict escalation, meaning that a lack of touch would be inevitable in this situation. Along the same lines, Ariel, a 21-year-old female supports this statement:

I think [touch is] perceived as a gesture of closeness and me rejecting any touch especially in a time of conflict could be like a ‘hey stay away, I’m really mad…so please don’t touch me’…I’m not necessarily the biggest touchiest person especially in a moment of conflict or when I’m feeling…really emotional.

Annabeth believes that touch is really genuine; however, in times of conflict escalation, she feels like touch could be interpreted as discrediting what she is truly feeling.

As previously mentioned, touch functions as a love language; so, a lack of touch can be really emotional painful if both individuals identify touch as their love language. This statement is supported by Kaylee, a 22-year-old female: “I would say lack of touch would hurt. Like if we decided, oh, well I’m not going to kiss you or I’m not going to touch you. Like I don’t want anything to do with you, don’t touch me. That’s painful for both of us.” Based on the experiences of these participants, a lack of tactile cues illustrates one’s unwillingness to listen and resolve a conflict, meaning that the conflict will continue
escalating.

**Physical distance representing emotional distance.** Conflict escalation is characterized by the use of physical distance to indicate one’s preparedness to end a conflict. An increase in physical distance represents an emotional disconnect as it makes it more difficult to read one’s partner and analyze how they are feeling; thus, it makes conflict resolution more difficult. In other words, physical distance represents an emotional distance between two romantic partners. However, the opposite is just as likely to occur; a decrease in physical distance represents an emotional flooding and can come across as confrontational, further escalating the conflict. Some common proxemic cues involve leaving a room, storming off, turning your back towards your partner, or not being face-to-face with your partner. An example of not being face-to-face comes from Nicole:

Um, I think that it has gotten to a point where if we’re going around in circles, I’m just like that’s done... We normally sit on opposite sides of the couch because that’s where we can lounge on each end but, um, definitely kind of turn my back a little bit, maybe more at an angle.

Nicole goes on to mention that her partner is more likely to leave a room because he needs time to cool down from his strong emotions. In contrast, Nicole is more likely to pursue her partner as she views an increased distance as a refusal to resolve a conflict and delay conflict resolution; thus, Nicole instigates further escalation of the conflict with her actions as her boyfriend withdraws even more.

An example of storming off comes from Reagan: “If he is getting really frustrated, he’ll leave the room. Sometimes I’m the one that has to go after him because I’d be like ‘I’m not done with this conversation’... If we’re not getting anywhere, I’m done and then he’ll walk out.” Reagan and her partner do not normally do face-to-face interactions; however, she acknowledges that if you are willing to walk away then “you’re not wanting to deal with it right then and you just don’t want to be near that person.” As a result, creating physical distance allows Reagan and her boyfriend to deal with their emotions separately due to the conflict reaching a breaking point where any further time together will make the conflict even worse.

Last, one’s use of physical distance is sometimes influenced by a partner’s relational history with
other individuals including their family, friends, and past romantic partners. This observation is highlighted by Anisa when she states:

I feel like in that moment, yes, but that does stem from his relationship with his family and that’s from a couple’s therapist sitting down with us and like talking to us about that. Cause that was something I brought up and we think that just like his relationship with his father has had a lot to do with it and it’s like the manner in which his dad initiates conflict with him is what makes him triggered to like shutdown and not be present. And so, he will, he’ll put like miles of distance in between them and then with me it’s no different. I think it’s the way that conflict is initiated that will trigger that distance.

Anisa acknowledges not only that the physical distance at that time represents an emotional distance for her and her partner but that the manner in which a conflict interaction is initiated can affect whether distance will be increased or decreased.

**Characteristics of a Conflict Interaction**

*The necessity and unavoidability of conflict.* Most conflicts occur due to a lack of clarity in communication. According to Reagan: “Anytime you don’t agree, that’s automatically a conflict. Anytime you have different opinions, that’s a conflict. Even if it’s just something random…it doesn’t have any real meaning that’s still technically a conflict. So anytime you differ, conflict is everywhere.” This statement highlights the inevitable nature of conflict; however, it is also necessary for improvement, i.e. personal growth, in a healthy relationship. Thus, it is important to remember that one must engage in constructive conflict, e.g. deal with it effectively and use it as a chance to gather information on the conflict interaction. Emma, a 22-year-old Caucasian female, provides some great advice on how to approach conflict:

I think you have to have an open mind whenever it comes to conflict. I think a lot of people think that they have incompatible goals when actually they really don’t because they just misinterpret the message that the other is sending. So, I think it’s important to clarify and to also understand that you may have a strong opinion but that the other person also has that same strong opinion. I think you can’t expect one person to forfeit their opinion and not the other. I think you have to compromise and meet halfway and find common ground as best as possible.

In romantic relationships, you are bound to find conflict as each partner brings different tendencies and perspectives to the relationship. For Kaylee, it’s important to understand your partner, how they behave in
a particular conflict interaction, and recognize their love language and behavior. She states that one must recognize that conflicts arise due to day-to-day stress from jobs, deadlines, internships, etc. Similarly, Reagan finds that financial responsibilities lead to constant conflict; however, they have becoming better at managing this issue over time. Reagan gave the following advice: “Helping with conflict is being completely honest…I think it helps to not put words in their mouth and say ‘you hate me’ because I don’t really know.” Ultimately, it is important to remember that conflict can occur at any time with different intensities and scopes; so, it is best to approach conflict constructively rather than avoiding it.

The duration of a typical conflict interaction. Most conflicts vary in duration from short-term to long-term based on the severity and conflict strategies used to manage the interaction. The variability in duration of conflict is best described by Trevor:

You can have a conflict that can be short-term and like easily resolved. So let’s just say that one of us annoys the other or we had a different view or something just came off the wrong way. You can resolve it quickly by saying ‘I’m sorry’ and calming down but then long-term conflicts are on big issues that are going on at the time…It’s kind of like are we compatible situation.

In addition, other factors such as the length of the romantic relationship, i.e. long-term and short-term, and emotional and physical connection potentially affect the duration of a typical conflict interaction. In terms of long-term versus short-term relationship stages, Nicole had the following to say concerning conflict: “In the beginning it wasn’t often at all just because it was a new relationship. I think after our first major event, it was daily for a while…I think over the last year we’ve probably gotten to just five conflicts or disagreements.” Nicole goes on to elaborate that her relationship is mostly a long distance one at the moment, so there exists a mutual agreement to resolve conflicts quicker to maximize the limited amount of time they have to spend together.

Last, individuals who employ healthy conflict strategies, i.e. collaborating and compromising, decrease the duration of a conflict interaction. Caitlyn who described her conflict strategy as being compromising has the following to say concerning conflict:

I think that I am really eager to talk about everything like immediately because I don't like sitting on a problem and I want to make sure…that the other person understands that I am concerned with how they view the problem. So, with him, like if we were to get in a conflict, I would
probably want to talk the whole thing out like at one time if it were up to me and that might not always be a good thing. But then he is more likely to say that we need to take a break for a few minutes and then like we regroup so the conflict doesn't stretch or...bigger than it already is.

It is important to note that there is no defined duration for what a healthy conflict should look like. The majority of participants agreed that the duration depends on the severity of the interaction; some conflicts lasted only a few minutes while others lasted a few days.

**Discussion**

The primary goal of this study was to understand which nonverbal behaviors, positive versus negative, are essential in the longevity of a romantic relationship, i.e. the various relationship stages (Prinsen & Punyanunt-Carter, 2010; Spot et al., 2010). In addition, the current research aimed to discover whether or not the accurate recognition of these nonverbals led to the escalation or deescalation of a conflict interaction within the context of a relationship. Overall my findings provide a foundation for further investigation of the nonverbal behaviors used during conflict interactions within short-term and long-term relationships. Participants identified three nonverbal behaviors that were positive in nature: touch as a signifier of conflict resolution, proximity and orientation indicating vulnerability and closeness, and facial expressions and eye contact inviting discussion. Participants also identified two nonverbal behaviors that were negative in nature: touch as a signifier of conflict escalation and physical distance representing emotional distance. Last, participants identified two characteristics that define conflict interactions: the necessity and unavoidability of conflict and the duration of a typical conflict.

During the different relationship stages, nonverbal communication does change and the use of positive nonverbal behaviors, e.g. facial expressions, is correlated with relational longevity and relational satisfaction (Prinsen & Punyanunt-Carter, 2010; Spott, 2010; Yoo, 2016). The use of certain nonverbal behaviors, positive versus negative, and conflict strategies, collaborating and compromising versus avoiding and competing, are central to understanding how short-term relationships progress to long-term relationships. Ultimately, a major implication of the present study is centered on the accurate recognition
of negative nonverbal behaviors that allow for relational longevity by escalating or deescalating a conflict.

**Implication of the Present Study**

The major implication of this study focuses on the accurate recognition of negative nonverbal behaviors that allows for relational longevity. Spott et al.'s (2010) research suggests that the duration of a romantic relationship increases when the use of negative nonverbal behaviors decreases. Some romantic partners indicated that this statement held true in their own relationships. Females tended to be more relationship-oriented and perceive nonverbal communication differently compared to their male counterparts. This pattern is supported by Prinsen and Punyanunt-Carter’s (2010) research that suggests that there is a vast difference in nonverbal communication between the different relationship stages and gender. The majority of individuals indicated a lack of haptic cues and an increase in distance were common negative nonverbal behaviors present in their relationship. Additionally, the majority of individuals indicated that the use of negative nonverbal behaviors resulted in conflict escalation. Ultimately, the use of positive nonverbal behaviors such as haptic cues, eye contact, and relaxed facial expressions were common positive nonverbal behaviors that effectively deescalated a conflict and increased relational longevity.

**Strengths and Contributions of the Present Study**

The present study provides three important contributions to existing research involving relationship stages, nonverbal behaviors, and conflict interactions. First, this study highlights positive nonverbal behaviors used by individuals to deescalate a conflict interaction within the context of short-term and long-term relationships. The results of my study provide a foundation for understanding which haptic, proxemic, vocalic, and kinesic cues are deemed positive during a relational disagreement and the increase in relational longevity and satisfaction that results from proper recognition of these nonverbal cues. Second, the present study offers a unique look at the negative nonverbals used by individuals that further escalates a conflict within the context of two relationship stages. Participants in my study have identified various haptic, proxemic, vocalic, and kinesic cues that significantly increase the severity of a
conflict interaction and reduce relational longevity. This observation adds to the body of knowledge because it sheds light on particular nonverbal behaviors that could potentially lead to decreased relational satisfaction and accelerate the disengagement process. Last, the present study contributed results that deepened the understanding of how conflict interactions are necessary and unavoidable as well as vary in overall duration. Although many researchers have studied relationship stages, few have conducted a study that spotlights the nonverbal behaviors used based on the various strategies that individuals adopt during a conflict interaction. The present study includes interviews with three participants that identify as nontraditional undergraduate students, whereas much exigent research involves traditional undergraduate students. Studying multiple undergraduate students, traditional and nontraditional, helps to shed light on pivotal nonverbal behaviors and conflict management strategies present within the context of romantic relationships, e.g. both short-term and long-term relationships. The findings from the present study contribute to exigent research that helps individuals understand how nonverbal behaviors affect relational longevity and satisfaction and how conflict interactions either escalate or deescalate as a result of an accurate recognition of these nonverbal cues.

Limitations of the Present Study and Future Directions

Although the present study makes various contributions to exigent research, it is not without its limitations. One limitation of the present study is that it only considers the perspective of one individual from a given romantic relationship. It would be interesting to incorporate and examine both romantic partners in order to cultivate a deeper understanding and appreciation of how particular nonverbal behaviors impact conflict management and relational longevity. By including both romantic partners, researchers could more accurately determine how each individual partner responds to the other’s nonverbal behaviors in the context of a conflict interaction.

Second, although this study provides an in-depth understanding of the nonverbal behaviors used to escalate and deescalate a conflict interaction, this study primarily relies on individual’s recollections of particular nonverbal behaviors used during a relational disagreement. An observational study could better identify which particular nonverbals affect the severity of a conflict over the course of a single conflict
interaction. This design would help eliminate the threats misperceptions provide when participants attempt to recall specific nonverbal behaviors used during a conflict that might have occurred a while ago.

Last, although this study involved multiple interviews with undergraduate students, the study primarily captured the experiences of individuals who identified as female, Caucasian, and involved in a short-term relationship. Thus, this sample does not fully represent the diversity of undergraduate students. A larger study that includes more individuals who identify as male, a minority, e.g. African Americans, Hispanic Americans, and Asian Americans, and involved in a long-term relationship could strengthen the findings of this study and serve as a better representation of the diverse undergraduate student population.

In conclusion, understanding the nonverbal behaviors used during a conflict escalation and deescalation offers a useful framework for examining the longevity of romantic relationships in two stages, short-term and long-term. Future communication scholars should continue to investigate positive and negative nonverbal behaviors, explain why some dyads have better relational longevity, and identify how the severity of a conflict interaction affects relational satisfaction. Overall, the nature of my current study provides an extensive foundation for continued research on romantic relationships and helps extend our understanding of the importance of nonverbal communication during conflict interactions.
References


Anxiety Among College Students

By: Bobby Lowery

Abstract

Research has shown and continues to show that many college students encounter a certain level of anxiety throughout their college experience. The previous research has also describes that the cause of the students anxiety can vary. The purpose of this study was to examine the correlations between college students who report anxiety disorders and five constructs: parenting styles, academic distress, perfectionism, perceived social support, and mobile phone addition. Data was collected using a convenient sample paper survey. The study consisted of 100 college students from the University Of Montevallo’s campus who voluntarily agreed to participate in the study.

Introduction

Anxiety is one of the most prevalent psychological disorders in school-age adolescents and college students worldwide (Costello, Mustillo, Erkanli, Keeler, & Angold, 2013). According to the DSM 5, anxiety is when an individual finds it hard to control his/her worry or apprehensive expectation (The Diagnostic and Statistical Manual of Mental Disorders (5th ed.; DSM–5; American Psychiatric Association, 2013). Likewise, anxiety is the inability for one to control worry or apprehensive expectations; symptoms can be: restless, feeling on edge, easily fatigued, irritability, muscle tension, etc. Rosenberg (2018) reported in recent years, depression anxiety has oppressed college students at an alarming rate. He also states that 1 and 5 university students suffer from anxiety or depression. Anxiety and Depression Association of America (2018 ) reports that anxiety disorders are the most common mental illness in the U.S., affecting 40 million adults in the United States age 18 and older, or 18.1% of the population every year.
The purpose of this study is to examine the correlations between college students who report anxiety disorders and five constructs: Parenting styles, Academic distress, Perfectionism, Perceived social support, Mobile phone addition.

**Literature Review**

**Parenting styles**

Students rely on family for emotional support (Budescu & Silverman, 2016). The attributes of times spent with parents and the communication between parents and adolescents are important as measure of parent physical and emotional availability. (Sharma & Tiwari, 2015). Silva, Dorso, Azhar, & Renk (2009-2008) reported that Fathers; authoritative parenting were related significantly and negatively to college students’ levels of anxiety, indicating that college students who rated their fathers exhibiting authoritative parenting experienced lower levels of anxiety. In addition, they also reported Mothers’ authoritarian parenting was related significantly to levels of anxiety to college students’ level of anxiety. Suggesting that college students who rated their mothers as exhibiting authoritarian experienced higher levels of anxiety.

**Academic distress**

Bhujade (2017) reported that there is a unique amount of stressor put upon the college students that they have to deal with. In addition to that he also reported specifically college calls for a significant transition, where student have to experience for the first time thing like new lifestyles, friends, roommates, exposure to new cultures and alternate ways of thinking. Students who struggle with any of the items listed above will likely struggle. There is also a feeling of competitions among the students as well, so there is a pressure to do well, whether the demands come from parents or the students. (Bhujaed 2017). When asked to list their major concerns,
college students indicated academic performance, pressure to succeed, and post-graduation plans as their top concerns (Beiter et al., 2015).

**Perfectionism**

Perfectionism has been identified as a potentially maladaptive trait considered to be a predisposing factor of psychopathology (mental or behavior disorder) (Dunkley et al., 2011). Zhang & cai (2012b) reported the Slade and Owens (1998) have explicated a dual-process model of perfectionism that is based on underlying functional differences. In the dual process model, adaptive perfectionist tend to set themselves realistic rather unrealistic standards, emphasize achieving success rather than avoiding failure and their behavior are underlaid by positive reinforcements (Bergman, Nyland, & Burns, 2007). On the other hand, behavior of maladaptive perfectionist are strengthened by negative reinforcements, as they seek to avoid or escape failure, tend to set unrealistically high standards, and are driven by fear of failure (Burn, Dittmann, Nguyen, & Mitchelson, 2000). Researchers have found an association between perfectionism and anxiety (Kawamura et al., 2001).

**Perceived social support**

Social support has been broadly defined as the emotional, informational, and instrumental support resources available to a person’s social network (Cohens & Wills, 1985). Perceived support is “the belief that help is available if need” (Calvete & Connor-smith 2006). Perceived social support has been widely acknowledge as playing a buffering role between stress and psychological well-being (Cohne & Wills, 1985). An extensive literature has documented the robust, positive impact of these resources on individual’s psychological and physical well-being (BroadHead et al., 1983). Broadly, high amounts of social supports has been associated with a decrease in symptoms of depression and anxiety in response to life stressors, with increased
positive coping, and with better psychological adjustment to chronic health conditions (Thoits, 1995). Conversely, individuals low in social supports may be greater risk of experiencing substance abuse problems, mental and physical illness, and suicidal ideation. (Benton, Robertson, Tseng, Newton, and Benton, 2003)

**Mobile phone addiction**

As per diagnostics and statistical Manual of Mental disorders (DSM) IV-TR, an addictive behavior is the behavior based on a pathological need for substance or activity (American Psychiatric Association, 2000). Branchi and Phillips (2005) identified signs of Mobile phone addiction and theses signs include preoccupation with MP (user become worried about missing a call when the MP is out of range for some time); continues increased in amount of time using MP to get desired Satisfaction; use of MP to escape from problem or relieve from dysphoric mood (isolation, anxiety, loneliness & and depression). Anxiety involves negative mood and worry. (Barlow 1988-2002a). To use the mobile phone to relieve from negative mood or worry is one of the symptoms of mobile phone addiction (Pathak & Mhaske, 2017).

**Methods**

We will used a convenience sample of 100 students. 21 males and 78 females and distribute paper copies of the surveys in classes where we can secure permission and in social settings. Participation will be anonymous with no identifying information requested. Data was kept on a password protected computer (student) and in Box (faculty member).

**Results**

After further knowledge and experience in the McNair program, I discovered that I needed to change my original survey assessment. The issue associated with the curry survey is that it was designed to collect categorical data. Unfortunately, this has not allowed for the ability
to perform true inferential statistics and non-parametric statistics would be the only option. Over the past few months, I have collaborated with a statistician at the University of North Georgia and we have begun working on converting the continuous variables to establish reporting of actual numbers. Additionally, many questions has to be designed to include a 1-5 Likert scale. I will continue to collaborate with a statistician to learn more about selecting survey questions and how to operationalize and define variables in a way that is consistent with the literature. Consequently, I have provided the sample descriptive frequencies by self-report.

**Parenting Styles questions - (in relation to) High Anxiety (HA)**

Parents are highly involved: 16% strongly agree, 22% agree, 27% neutral, disagree, 15% strongly disagree. Mothers’ Stress: 11% strongly agree, 15% agree, 25% neutral, 24% disagree, 24% strongly disagree.

**Perceived Social Support- HA**

Family Support: 64% Strongly agree, 26% agree, 6% neutral, 3% disagree, 1% strongly disagree. Comfort in Number of Friends: 39% Strongly agree, 44% agree, 10% neutral, 5% disagree, 2% strongly disagree.

**Mobile Phone Addiction- HA**

Social media: 4% 0-hours, 46% 1-2 Hours, 44% 3-4 Hours, 4% 5-6 hours, 2% more than 6. Streaming Services: 16% 0-hours, 40% 1-2 hours, 30% 3-4 hours, 11% 5-6 hours, 3% more than 6. Text/Face to Face: 7% Strongly agree, 33% agree, 36% neutral, 23% disagree, 1% strongly disagree.
Academic Distress- HA

Worry not academically prepared: 13% Strongly agree, 27% agree, 13% neutral, 37% disagree, 10% strongly disagree. Intimidated by Professors: 8% Strongly agree, 18% agree, 19% neutral, 37% disagree, 18% strongly disagree

Conclusion

Due to certain circumstances, I was not able to report the correlation between the constructs and anxiety. I have provided the percentages of the answers provided by the participants. I will continue my research journey to find the correlations between my constructs and anxiety among college students.
References


Damsels in Distress: A Closer Look at the Pre-Raphaelites, John Keats and the Woman’s Point of View

By: Katharine Murray

Abstract

Nineteenth century writers and painters alike adored the feminine subject and her delicate nature. The Pre-Raphaelite painters were inspired by the damsels in distress from Keats poems in contrast to Victorian society’s ideal woman. But the woman as she was is left out of the musing, and questions of the true woman’s view come into focus. Lovesick loyal women are a theme in the ideal of Keats and Pre-Raphaelite paintings as much so as the reality of the models who posed.

Introduction

I became fascinated by the Victorian artists who called themselves the Pre-Raphaelite Brotherhood from the very first art history class I took and saw the paintings of beautiful women and their melancholic expressions. Victorian poets and the Pre-Raphaelites shared an interest in these medieval and romantic subjects because of a belief in the artistry of the work made before the Renaissance. There was a yearning to get back to “primitive” poetry and art that started a small Medievalism revival within their own works. I began my research focusing on John Keats and his poems *Isabella* and *the Eve of St. Agnes*, the very poems that inspired multiple artworks and caused the Pre-Raphaelite Brotherhood’s founding members Rossetti, Hunt, and Millais to bond. The Pre- Raphaelites had a list of the greats that they admired, and Keats was near the top succeeding Jesus Christ. They painted from Keats and shared a love for his poetry. He was the focus of deep emotional attachments with themes of sacrificed youth, idealism and approaching maturity (Codell). In the start of my research I had only the intentions of comparing the poems to the paintings illustrating the verses by the artists John Everett Millais and William Holman Hunt,
but upon further reading I began to unravel the misogynistic nature of members of the Brotherhood and the intrinsic male point-of-view of John Keats. The eye-opening discovery of the nature of these men I previously held in high regard didn’t sit well with me. My interests shifted to the women behind the paintings and uncovering the woman’s point of view.

Upon first glance at the work of this art movement, you would think it to be feminist and brash. Rossetti was even rumored to have been friends with and supported women writers like Leticia Elizabeth Landon (Armstrong 17). The style of painting and women subjects were drastically different from the matronly plump face figures that were the norm in Victorian-era art at the time. It was also met with the harshest criticism that had ever occurred describing the women as ugly and repulsive. The feminine subjects in PRB paintings had stronger features like androgynous jawlines, bright red hair, and bigger hands. They wore less modest medieval garb and showed morose aloof facial expressions, characteristics that led to suspicion and undeniable scrutiny. The striking heroines in each painting told a tale of independence taking fate into their own hands and straying from the life their families had pre-destined for them. Perhaps one of the earliest works in the repertoire demonstrates this ideal best is Millais’s Isabella painted in 1848, the first year of the Pre-Raphaelite Brotherhood.

The painting of Isabella is exuberant and cinematic with the narrative of the poem captured beautifully in a rich color palette. The murderous brothers are painted in crimson alluding to their will of heart and malicious intent towards the ever-suffering also in a lighter shade of velvety red, Lorenzo. Lorenzo was tortured not only by his ill fate but status in the household. His status as a lowly merchant employed by Isabella’s family would always keep him from being worthy of her. Nevertheless, his passion and intent grow stronger for the fair maiden Isabel. You can see the eager and earnest look of intense devotion deepening his face as he turns...
towards his lover, Isabella. In contrast to the clothing of the rest of the family or characters seated at the dinner table, Isabella is draped in dull greys and embroidered greens that both are beautiful and yet mostly forgettable. If Isabella were to stand up, she would fade into the busily filigreed background and judging from her morose face and downward glance she might wish it were so.

Isabella, John Everett Millais (1848/1849)

Millais focused on Isabella’s dynamics with the males in her life unexpectedly illustrating Keats’s poem. Millais captured the brothers’ suspicion of Lorenzo in their questioning facial expressions and tense body language. It could read as two brothers looking out for their sister, but it is fear of losing their sister to someone who will not add monetary value and status to the
family household. In Keats’s poem, there is a verse about the brothers not being happy with their sister’s love for he wasn’t a noble with olive trees. The other male we hyper-focus on is Lorenzo with his wanting passionate glances to Isabella. He is painted so eagerly and could be read as desperate. Keats had an early line about the couple being unhappy in the beginning but what a shame that would be after all the tears shed. The relationship is tragic, but maybe it always was. The arrangement was never one written in the stars, with both parties being of different classes and lifestyles. It was more like they enjoyed sampling the forbidden fruits and getting messy. Lorenzo is murdered by Isabella’s brothers and that is sad, but what of Lorenzo? Did he ever consider Isabella? All musings aside I can’t help but point the finger at the flaw in his character. He was not naïve and trusting like the “fair simple” Isabella.

It is difficult to look at this painting knowing that it was painted from life observation and not question the life of the woman who modeled for it. Who was Isabella, or better who was the woman who captured the essence of the poem with her aesthetics? Close reading led me to Mary Hodgkinson, Millais’s stepbrother’s wife. She modeled not only for Isabella but also for Christ in the House of His Parents. She received harsh criticism from Charles Dickens describing her as, “so horrible in her ugliness that…she would stand out from the rest of the company as a Monster, in the vilest cabaret in France or the lowest gin-shop in England” (Prettejohn). After this review she refused to ever model again, and who can blame her. How Mary Hodgkinson and the other female models were treated or respected is highlighted in Christina Rossetti’s poem, In an Artist’s Studio. Christina Rossetti critiques her brother and his friends of the Pre-Raphaelites and their indifference of the models for their paintings calling the women “a nameless girl in freshest summer greens”. To the artist, the woman that was idealized to be “his dream” is never seen past the objective she serves, a model. The Pre-Raphaelite male seeks to depict daring
women in tragedy but fail to see the dangerous environments mentally and physically present for the women who bring their art to life. Lizzie Siddal almost died posing as Ophelia for Millais catching pneumonia in a frozen bath (Walker 28). Lizzie Siddal is a prime example of the great talent of a woman being dismissed as nothing more than good looks. Her Beauty and rocky tumultuous relationship with artist Rossetti overshadowed her talent as an artist and poet. If Ruskin hadn’t championed her art, we probably wouldn’t have any accounts of Lizzie being anything other than the unique beautiful girl captured in many of the Pre-Raphaelite paintings.

Lizzie Siddal painted the Eve of St. Agnes inspired by the poem by John Keats. In her interpretation you see the young Madeline praying to St. Agnes. Madeline’s innocence is highlighted by the halo above her head and the pious symbols of Christ in the background. Keats described her as “so pure a thing, so free from mortal taint.” Siddal’s painting is almost like the before in contrast to William Holman Hunt’s painting of the same poem. Hunt paints a scene of a stolen away moment from a night of celebration. Madeline is fleeing with Porphyro into the night hoodwinked by faery love or by the idealization of her Romeoesque hero whose intentions are entirely questionable. Her forbidden lover is in enemy territory where everyone in attendance to the festivities would want his head and yet he remains undetected with his virgin maiden. They run away together into the unknown. It is of note to mention how the very different artists chose to depict the poem. Hunt painted Porphyro, the voyeur who sneaks into Madeline’s bedchamber with suspicious intent as a hero. Siddal chose to depict the moment of innocent anxiety from Madeline as she prayed and awaited the sweet dreams of her husband to be.
Figure 1. Eve of St. Agnes Elizabeth Siddal (1850)
Figure 2. The flight of Madeline and Porphyro during the drunkenness attending the revelry (The Eve of St. Agnes)

William Holman Hunt (1847/1857)

The women of dreams or poems like Isabella or Madeline that were brash enough to choose their love in the face of societal rules aren’t mirrored in reality. The female view is excluded. Women weren’t allowed to be a part of the Pre-Raphaelite movement as equal intellectuals, but their influence is still there. The patriarchal institution of the 19th century wasn’t ready for the strong women it created.
Works Cited


Beasley, Mr M, director. *Analysis of La Belle Dame sans Merci. YouTube*, YouTube, 19 May 2016, www.youtube.com/watch?v=iiClD7H-3tA.

Beasley, Mr M, director. *Analysis of The Eve of St Agnes PART TWO. YouTube*, YouTube, 27 Apr. 2018, www.youtube.com/watch?v=eKoMkX5fu3Q.


Burnout, Compassion Fatigue, Compassion Satisfaction, Trauma and Resilience Within Child Welfare Work; A Secondary Analysis

By: Alexis Nolen

Abstract

This study focused on professional burnout, compassion fatigue, trauma, compassion satisfaction, and resilience in child welfare workers. This study served as a secondary analysis to closely examine the impact of burnout in relation to emotional exhaustion and lack of personal accomplishment and the professional quality of life in relation to compassion satisfaction and compassion fatigue on child welfare workers. A total of 147 participants completed scales that measured their level of each concept examined from low, moderate, to high. The scales used included the Maslach Burnout Inventory (MBI) and the Professional Quality of Life Scale (Pro-QOL). The results showed that although people are feeling burned out, they are not losing their spirit for work. People are feeling rewarded, yet, they are also still emotionally exhausted. (Key Words: Burnout, Emotional Exhaustion, Personal Accomplishment, Compassion Fatigue, Compassion, Satisfaction, Trauma, Secondary Traumatic Stress, Vicarious Traumatization, Resilience.)

Introduction

Burnout

Studies have shown a correlation between individuals who work in helping fields such as social workers, psychologists, therapists, psychiatrist, medical doctors, etc and burnout. Individuals working with clients with severe mental illness, who need multiple services and long-term support, face additional challenges when dealing with managed care (Acker, 2011). Burnout is defined as a construct that describes a subjective psychological experience that
involves feelings of being stressed, emotionally extended and drained by one’s work (Acker & Lawrence, 2009). As mentioned prior, it is indicated that burnout is a response to work-related stress typically found in professionals working in care service organizations (Acker & Lawrence, 2009). Burnout is often conceptualized in three distinct aspects: emotional exhaustion (a situation of exhaustion due to stressful contacts with people; depersonalization (impersonal, detached, and cynical responses toward clients; and personal accomplishments (a negative self-evaluation by workers) (Acker & Lawrence; 2009). These three aspects are pertinent for this study and are measured by the Maslach Burnout Inventory (MBI).

The actual process of burning out is a progressive state occurring cumulatively over time with contributing factors related to both the individual, the populations served, and the organization (Newell & Nelson-Gardell, 2013.). Risk factors included that may cause professional burnout (noted as the single largest risk factor) is the nature of human service work in general; this is attributed to the emotional expectations involved with human service work (Newell & Nelson-Gardell, 2013, p.430) The symptoms of burnout can include common colds, flu-like symptoms, gastroenteritis, headaches, and fatigue (Acker, 2009). Studies have indicated that most risk factors that are common can occur an individual, organizational, and/or client level. It is stated that the organization plays a key role in the professional burnout process (Newell & Nelson-Gardell, 2013). Organizational factors include excessively high caseloads, lack of control or influence over agency policies and procedures, unfairness in organizational structure and discipline, lack of support from professional colleagues, inadequate supervision, and poor agency and on-the-job training (Newell & Nelson-Gardell, p. 430).

Compassion Fatigue
Compassion fatigue is known to be one factor in professional quality of life. Secondary stress reactions are sometimes labeled as secondary traumatic stress or vicarious trauma (Thomas, 2013, p.371). For the purposes of this study, secondary trauma and vicarious trauma will be looked at as individuals. Compassion Fatigue is defined as symptoms such as intrusive thoughts and images, avoidance of reminders of the stressors, and fearfulness (Thomas, 2013). It is stated that individuals are thought to be more vulnerable to experiencing compassion fatigue when empathy is present along with exposure to people who have experienced trauma (Kapoulitsas & Corcoran, 2015, p. 88).

Symptoms of compassion fatigue are described as the cognitive, emotional, behavioral and somatic impacts upon helping professionals (Kapoulitsas, 2015). These symptoms include lowered concentration, apathy, minimization and preoccupation with trauma, powerlessness, angry, guilty, depressed, distressing dreams, irritability, moodiness, and withdrawal (Kapoulitsas & Corcoran, 2015). The risk factors that contribute to compassion fatigue are primarily common to those seen in the risk factors mentioned in the burnout section. As mentioned, prior, the largest risk factor for developing compassion fatigue is the nature of human service work in general (Newell & Nelson-Gardell, 2013).

Secondary Trauma and Vicarious Trauma

Studies show that it is likely for those individuals working in the helping field to experience vicarious traumatization and secondary traumatic stress due to serving clients with trauma. Secondary traumatic stress (STS) is described as the experience of being traumatized vicariously through exposure via interpersonal interactions to others’ primary traumatic experiences (Newell & Nelson-Gardell, 2014, p. 430). STS results from engaging empathetically in a relationship with an individual suffering as a result of a traumatic experience and bearing
witness to the intense or horrific experiences of that particular person’s primary trauma material (Newell & Nelson-Gardell, 2013, p.430).

**Vicarious traumatization** is defined as a process of cognitive change resulting from chronic empathetic engagement with trauma survivors (Newell & MacNeil, 2010). This type of trauma represents the resulting cognitive shifts in beliefs and thinking that occur in social workers in direct practice with victims of trauma (Newell & MacNeil, 2010, p. 60). Experiencing trauma causes cognitive differentiations in individuals. The symptoms for experiencing vicarious traumatization include alterations in one’s sense of self; changes in world views about key issues such as safety, trust, and control; and changes in spiritual beliefs (Newell and MacNeil, 2010, p.60).

The two terms are easily confused or used as the same. To distinguish the two from one another, it is important to note that vicarious traumatization is a cognitive change process resulting from chronic direct practice with trauma populations, in which outcomes are alterations in one’s thoughts and beliefs about the world (Newell and MacNeil, 2010, p.60). Secondary traumatic stress places more emphasis on the outward behavioral symptoms rather than intrinsic cognitive changes (Newell and MacNeil, 2010, p. 60-61).

**Compassion Satisfaction and Resilience**

*Compassion satisfaction* is defined as the positivity involved in caring; it is the ability to receive gratification from caregiving (Ray, Wong, White & Heaslip, 2013). It is important to note that there is very little amounts of literature that addressing compassion satisfaction. In this section of the study, compassion satisfaction and resilience will be looked at from a point of view that shows factors that support and encourage both concepts. Having supervisor and coworker support and peer-team cohesion are associated with lower burnout, which can correlate
to compassion satisfaction (Ray, Wong, White & Heaslip, 2013, p. 257). The level of reported social support from friends, family, and community was the most significant predictor of CS (Ray, Wong, White & Heaslip, 2013, p.257). Having a greater sense of control or efficacy at the workplace (being able to have a say about what happens at work, having one’s own space to work, etc.) was associated with higher compassion satisfaction (Ray, Wong, White & Heaslip; 2013, p. 257).

Resilience refers to a person’s capacity to overcome adversities that would otherwise be expected to have negative consequences (Kapoulitsas & Corcoran, 2015). In an article written by Maryanne Kapoulitsas and Tim Corcoran, it concludes that, resilience manifests in actions performed by individuals, relationships, families and communities (2015). Saleebey (2006) also views resilience as a common response to adversity and defines the term as a process involving growth and expression of insight, knowledge and capacities as a consequence of challenges experienced (Kapoulitas & Corcoran, 2015). In a 2007 article including Pilar Hernandez, David Gangsei and David Engstrom, the term coined vicarious resilience was introduced. The study supported the notion that VR is a natural process that has not previously been explicitly defined and described (Hernandez, Gangsei & Engstrom, 2007). This type of resilience showed that among the psychotherapists working with torture survivors, some made references that the inspiration and strength they drew from working with clients caused them to deem them as “heroes” (Hernandez, Gangsei & Engstrom, 2007, p. 230). That type of speculation set the authors up to think that trauma survivors have the potential to affect and transform therapists in a unique and positive manner (Hernandez, Gangsei & Engstrom, 2007). The main themes that spoke about vicarious resilience are: being positively affected by the resilience of clients,
alteration of perspectives on the therapist’s own life, and valuing the therapy work performed (Engstrom, Hernandez & Gangsei, 2008, p.15).

**General Factors That May Lead to Distress in the Workplace**

It can be inferred that there are factors such as the workplace environment, social support, trainings, etc. that can cause individuals that work in the helping field to either avoid or have an onset of distress in the workplace. Social support at the workplace, which includes supervision and other supportive mechanisms directed towards workers, is diminishing with dwindling resources and funding associated with social services (Acker, 2010, p. 592). Supervision and other opportunities such as workshops, continuing education, and stress management programs cost too much; resulting in limited opportunities for workers to discuss job related problems and advance professionally (Acker, 2010, p. 592). There are claims that have been made that a major problem for service providers is that they have not been adequately trained to practice in a managed care environment (Acker & Lawrence, 2009). High caseloads of persons with severe and persistent mental illness, limited resources, and the frustrations of not meeting their clients’ needs is another factor in causing high distress in individuals who serve (Acker & Lawrence, 2009, p.274).

**Methodology**

The purpose of this project was to enter survey data gathered during a series of 2017 summer workshop trainings on professional burnout, compassion fatigue and resilience with child welfare workers in practice with the State of Alabama Department of Human Resources. The collection of this survey data by the State of Alabama Department of Human Resources (DHR) was done as part of the workshop training and was approved by the DHR State Training
Office. The workshops were conducted at 5 different Alabama cities from May 1st-July 30th 2017. No survey data was gathered either prior to or after the workshop training dates.

There were no physical risks involved with this data collection and minimal to no psychological risk. Participation was anonymous and completely voluntary. Participants were under no obligation by the State of Alabama Department of Human Resources or the trainers to complete the surveys and were given full permission to exit the workshop or stop completion of the surveys at any time.

**Sample**

There was a total of 147 participants in this study. There was a total of 9 (6.1%) male participants and 138 (93.9%) female participants. Race consisted of primarily African Americans and Caucasians. Other was included as an all-inclusive group due to the individual percentages being small. There was a total of 77 (52.4%) African Americans, 62 (42.2%) Caucasians, and 8 (5.4%) of Other. The youngest to participate was 20 years of age and the eldest to participate was 64. There was a total of three that had age not reported. The mean age was 39.60. The job positions reported was titled supervisor, case worker, other, and did not specify. 47 (32%) were supervisors, 90 (61.2%) case workers, 1 (.7%) other, and 7 (4.8%) did not specify.

**Research Design**

The research design for this study is quantitative. The quantitative design consisted of specific portions of the *Maslach Burnout Inventory (MBI)* and the *Professional Quality of Life scale (ProQOL)*, which were used to determine the participants level of satisfaction in their work. This study is also a cross-sectional research design. This was taken place during the initial
data gathering process. This research also serves as a secondary research analysis. The data was analyzed through SPSS and results were gathered through its findings.

Instrumentation

**Measurement of Burnout.** Professional burnout was measured using the Maslach Burnout Inventory (MBI). The MBI measures burnout in 3 independent domains: emotional exhaustion, depersonalization, and reduced sense of personal accomplishment (see table 3 for scale coding and range). The psychometric properties of the MBI have been examined in numerous studies, and has demonstrated good reliability and construct validity with adults in workplace settings (Drake & Yadama, 1995; Schaufeli, Baker, Hoogdium, Schaap & Kadler, 2001; Taris, LeBlanc, Schaufeli, & Schreurs, 2005). The MBI has been utilized in numerous studies investigating the existence of professional burnout and is considered the most widely used instrument for the measure of this construct (Acker, 1999; Anderson, 2000; Arches, 1991; Maslach, 2001; Schaufeli et. al, 2001; Thorton, 1992). Because the MBI is a widely accepted and reliable instrument for measuring burnout, we relied on it to measure this construct. Although burnout is a domain of the Professional Quality of Life Scale described below, we chose to rely the MBI for our analyses (as seen in Table 1).

**Table 1: Range for coding professional burnout using the MBI**

<table>
<thead>
<tr>
<th>Maslach Burnout Inventory (MBI)</th>
<th>Max Score</th>
<th>Low</th>
<th>Moderate</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emotional Exhaustion</td>
<td>63</td>
<td>0-16</td>
<td>17-26</td>
<td>27-63</td>
</tr>
<tr>
<td>Depersonalization</td>
<td>28</td>
<td>0-6</td>
<td>7-12</td>
<td>13-28</td>
</tr>
<tr>
<td>Personal Accomplishment</td>
<td>56</td>
<td>39-56</td>
<td>32-38</td>
<td>0-31</td>
</tr>
</tbody>
</table>
Measurement of Compassion Fatigue and Compassion Satisfaction. Professional quality of life and compassion fatigue/satisfaction was measured using the Professional Quality of Life Scale - Revision IV (ProQOL) (Stamm, 2005). The ProQOL assesses professional quality of life in three independent domains, compassion satisfaction, burnout, and compassion fatigue (see table 2 for scale coding and range). Psychometric testing of the scale has shown high reliability using Cronbach's alpha test for each of the sub-scales (Stamm, 2005).

Table 2: Range for coding compassion satisfaction, compassion fatigue and burnout using the ProQOL

<table>
<thead>
<tr>
<th>Professional Quality of Life Scale (Pro-QOL)</th>
<th>Max Score</th>
<th>Low</th>
<th>Moderate</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compassion Satisfaction</td>
<td>75</td>
<td>0-33</td>
<td>34-42</td>
<td>43-75</td>
</tr>
<tr>
<td>Burnout</td>
<td>50</td>
<td>0-18</td>
<td>19-27</td>
<td>28-50</td>
</tr>
<tr>
<td>Compassion Fatigue</td>
<td>50</td>
<td>0-8</td>
<td>9-17</td>
<td>18-50</td>
</tr>
</tbody>
</table>

Results

The results were analyzed from SPSS software. From the Maslach Burnout Inventory, specific categories such as Emotional Exhaustion and Personal Accomplishment (lack thereof) were focused on. Specific items such as *I feel used up at the end of my workday and I feel I’m working too hard on my job* were analyzed to measure emotional exhaustion. Statistics for the total Emotional Exhaustion category as a whole was analyzed. Specific items such as *I feel I’m positively influencing other people’s lives through my work and I have accomplished many worthwhile things in this job* were analyzed to account for personal accomplishment. Statistics for the Personal Accomplishment category as a whole was analyzed as well.
The data gathered from the Professional Quality of Life scale specifically measured categories of Compassion Satisfaction and Compassion Fatigue. Specific items such as *I get satisfaction from being able to help people and I like my work as a helper* were analyzed to account for compassion satisfaction. Statistics for the ProQOL Compassion Satisfaction Category as whole was analyzed. *I find it difficult to separate my personal life from my life as a helper* was analyzed to account for compassion fatigue. The ProQOL Compassion Fatigue Category as a whole was analyzed as well.

**Emotional Exhaustion**

The overall data for Emotional Exhaustion showed a mean of 23.19, indicating that those stats are high moderate. The total Emotional Exhaustion Category results were shown as *None*, *Low*, *Moderate*, *High*, or g (outlier). The participants that showed *None* (no) emotional exhaustion was 1 (.7%), *Low* 49 (33.3%), *Moderate* 41 (27.9%), *High* 55 (37.4%) and (g) 1 (.7%). The *mean* of the category was (2.07), the *median* (2.00), the *mode* (3) and *std. deviation* read (1.034). This dataset shows that there are more feelings of emotional exhaustion than any other. There is a 4% difference in the low and high levels of emotional exhaustion.

The specific item *I feel used up at the end of my workday* was answered with the choices of *Never*, *A Few Times A Year or Less*, *Once a Month or Less*, *A Few Times a Month*, *Once a Week*, *A few Times a Week*, *Every day*, or *Missing*. Of the 147 participants, the results showed that (4.8%) indicated *Never*, (12.2%) *A Few Times A Year or Less*, (15.6%) *Once a Month or Less*, (12.2%) *A Few Times a Month*, (15.6%) *Once a Week*, (26.5%) *A Few Times a Week*, (11.6%) *Everyday*, and (1.4%) *Missing*. This data shows that the participants are mostly feeling that way mostly at least once a week.
For the item *I feel I'm working too hard on my job*, the same answer choices as above were given. Of the 147 participants, the results showed that (6.8%) answered Never, (17%) A Few Times A Year or Less, (14.3%) Once a Month or Less, (19.7) A Few Times a Month, (12.9%) Once a Week, (12.9%) A Few Times a Week, (15%) Every day, and (1.4%) Missing. This data shows that the participants are reporting feeling they are working too hard at least once a month or less.

**Personal Accomplishment**

The data for Decreased Professional Efficacy (PA) showed an overall mean of 33.29. These results show that it is moderate. The dataset for the Total Personal Accomplishment Category was viewed as None, Low, Moderate, High, or g (outlier). The participants that showed None (no) was 1 (.7%), Low 46 (31.3%), Moderate 52 (35.4%), High 47 (32%), and (g) 1 (.7%). The results show that there is mostly a moderate level of Personal Accomplishment. Combined together both Emotional Exhaustion and Personal Accomplishment (lack thereof) shows 65% of the results show moderate to high levels of burnout. The mean for the Personal Accomplishment Category is (2.04), the *median* (2.00), the *mode* (2), and the *std. deviation* is (.999).

The Personal Accomplishment item *I feel I’m positively Influencing Other People Lives Through My Work* had answer choices of A Few Times a Year or Less, Once a Month or Less, A few Times a Month, Once a Week, A Few Times a Week, Every day, and Missing. The data for A Few Times A Year or Less was (4.1%), Once a Month or Less (4.1%), A Few Times a Month (11.6%), Once a Week (15%), A Few Times a Week (31.3%), Every day (32.7%), and Missing (1.4%). This indicates that 32.7% of the participants feel that they are influencing others in their job every day and 31.3% feel the same a few times a week.
The sample item *I Have Accomplished Many Worthwhile Things in This Job* had answer choices of *Never, A Few Times a Year or Less, Once a Month or Less, A Few Times a Month, Once a Week, A Few Times a Week, Every day, and Missing*. The data for *A Few Times a Year or Less* showed (4.1 %) of the participants, *Once a Month or Less* (8.2%), *A Few Times a Month* (19%), *Once a Week* (18.4%), *A Few Times a Week* (25.9%), *Every day* (22.4%), and Missing (1.4%). This data indicates that the participants primarily feel that they are accomplishing worthwhile things in their job.

**Figure 1: Maslach’s Conceptual Model of Professional Burnout**

![Figure 1: Maslach’s Conceptual Model of Professional Burnout](image)

**Compassion Fatigue**

The data for Compassion Fatigue showed an overall mean of 24.48. This indicates that compassion fatigue is high in the workplace. The ProQOL Compassion Fatigue Category dataset results were placed as *Low, Moderate, High, or 32* (outliers). There were 49 (33.3%) that had a *low* sense of compassion fatigue, 96 (65.3%) were *moderate*, 1 (.7%) *high*, and 1 (.7%) as (32). The mean for the Compassion Fatigue Category is (1.88), the median (2.00), the mode (2), and the std. deviation (2.548).
From the Professional Quality of Life scale, the sample item *I find it difficult to separate my personal life from my life as a helper* showed a mean of (2.79), a median of (3.00) a mode of (3), and std. deviation of (.923). The response choices that were listed on the scale were *Rarely, A Few Times, Somewhat Often, Often, or Very Often*. Of the participants 11 (7.5%) responded *Rarely*, 43 (29.3%) *A Few Times*, 64 (43.5%) *Somewhat Often*, 24 (16.3) *Often*, and 5 (3.4%) *Very Often*. The results show that more participants are having such feelings a few times most of the time.

**Compassion Satisfaction**

The data for Compassion Satisfaction showed an overall mean of 39.36. That is a moderate level of compassion satisfaction. The ProQOL Compassion Satisfaction Category dataset was shown as *Moderate* or *High*. 94 (63.9%) showed moderate levels and 53 (36.1%) showed High levels. The *mean* was (2.36), the *median* (2.00), the *mode* (2), and the *std. deviation* as (.482). This data indicates that there are primarily moderate levels of compassion satisfaction in the workplace.

The sample item *I get satisfaction from being able to help people* had an overall mean of (4.48), a median of (5.00), a mode of (5), and the std. deviation (.645). The responses were as listed on the ProQOL scale but the participants only answered *Somewhat Often, Often, or Very Often*. 12 (8.2%) answered *Somewhat Often*, 52 (35.4%) *Often*, and 83 (56.5%) answered *Very Often*. This shows that there are very high levels of satisfaction from helping people in the workplace.

The sample item *I like my work as a helper* had an overall *mean* of (4.13), *median* (4.00), *mode* (4), and *std. deviation* (.779). The responses answered by the participants were *A Few*
Times, Somewhat Often, Often, and Very Often. Of the 147 participants 5 (3.4%) answered a Few Times, 21 (14.3%) Somewhat Often, 71 (48.3%) Often, and 50 (34%) answered Very Often.

This data shows that there are high levels in appreciation for their work.

**Discussion**

This study focused on professional burnout, compassion fatigue, trauma, compassion satisfaction, and resilience in child welfare workers. This study served as a secondary analysis to closely examine the impact of burnout in relation to emotional exhaustion and lack of personal accomplishment and the professional quality of life in relation to compassion satisfaction and compassion fatigue on child welfare workers.

Overall, people are feeling moderately burned out in this particular field of work. However, they are not losing their spirit for their work. They are experiencing moderate to high levels of compassion fatigue. Child welfare workers feel rewarded from their work as evidenced by compassion satisfaction scores.
It can be inferred that there are factors such as the workplace environment, social support, trainings, etc. that can cause individuals that work in the helping field to either avoid or have an onset of distress in the workplace.

References


Transubstantiation, Transmedia, and World-Building: The Pevensie Family Body in Novel, Games, and Films

By: Kelli Sellers

Abstract

Mark J. P. Wolf (Building Imaginary Worlds) describes a theory of imaginary world creation: his focus on narrative braids is helpful to understand the transmedia Pevensie family body present in all media versions of The Lion, the Witch and the Wardrobe. Wolf defines narrative braids as multiple events that come together across a work to provide unity; characters, such as Peter, Susan, Edmund, and Lucy Pevensie are not usually considered braids though they may help construct them. However, in this paper, I will argue that the children function as a cohesive, narrative braid that interweaves them into the meta concept of family in the Narnia world-building fabric. To make this argument, I will use the lens of transmedia storytelling theorized by both Wolf and Henry Jenkins (Convergence Culture) to provide readings of selected moments of The Lion, the Witch and the Wardrobe to establish the connections and then expanding to the rest of the novels where the Pevensies are present in. In addition, I will be comparing these selected moments to the 2005 Gameboy Advanced game of The Lion, the Witch and the Wardrobe, the 2008 Wii game of Prince Caspian, and the BBC adaptations of The Chronicles of Narnia series to demonstrate how world-building ensures that family is always communal.

While the braid is seen as subtle in the books and video games, it is more overt in the various films because it shows the relationship between the siblings as a family unit. Different media provide different perspectives, but universally, family unity stands in for a communion of faith: when one or more of the four siblings attempt to exit the braid, they and the remaining children are all unsuccessful. However, when the four work together, I argue that they are
transubstantiated into singular body that creates Narnia as a transmedia (and transdimensional) world, a perspective that allows audiences to fictionally experience the ideal of a faith community. (*Keywords:* Additive Comprehension, C.S. Lewis, Convergence, Narnia, Narrative Braid, Narrative Fabric, Narrative Thread, Pevensie Braid, Transmedia Storytelling, Transubstantiation, & World-Building.)

**Introduction**

When I think about C.S. Lewis’s *The Chronicles of Narnia* book series, I consider everything (characters, locations, events, themes, etc.) in the series that makes the world of Narnia unique. But what if one imagines everything in the series as an individual thread that interweaves with other threads and braids, creating a fabric of the world? This is what Mark J. P. Wolf theorizes in *Building Imaginary Worlds: The Theory and History of Subcreation*. In addition to the novels, any media (films, video games, toys, etc.) that revolve around the Narnia series also contribute to its fabric through Henry Jenkins’s concept of transmedia storytelling, described in *Convergence Culture: Where Old and New Media Collides* as “stories that unfold across multiple media platforms, with each medium making distinctive contributions to our understanding of the world...” (Jenkins 334).

While exploring the numerous threads and braids in both Lewis’s novels and the various media forms connected to the Narnia series, there was one particular braid that I found to have an important role in keeping the fabric together: the Pevensie children (Peter, Susan, Edmund, and Lucy). First introduced in *The Lion, the Witch and the Wardrobe*, these four children enter into the world of Narnia, finding themselves fighting against evil forces to restore order and ultimately becoming the Kings and Queens of this world. As the series continues, the Pevensies return to the world of Narnia to maintain peace and defend it from opposing enemies, allowing
them to learn and grow in age, character, and leadership as the young rulers of Narnia. In order to achieve this, the children (each their own individual thread) must come together as one in a braid or, as I will refer to them, the “Pevensie Braid.” Using a lens of transmedia storytelling, I will analyze how the Pevensie Braid functions throughout *The Lion, the Witch and the Wardrobe* along with selected adaptations and video games to see how the Pevensie Braid is represented and how it contributes to the Narnia fabric through the concept of family, one that is communal and transubstantiated.

**Wolf & Imaginary Worlds**

In *Building Imaginary Worlds*, Wolf not only records the history of imaginary worlds in various media forms (the oldest imaginary world tracing back to Homer’s *The Odyssey* from the Ninth century BC [Wolf 290]), but also provides the concepts necessary for one is analyzing, or even creating, an imaginary world. For this research, I will discuss three concepts Wolf describes: narrative threads, narrative braids, and narrative fabric.

First, Wolf defines a narrative thread as “a series of causally-linked events, which usually revolves around a character, object, or location, giving a sense of what happens to it over time” (Wolf 379). Notice that in Wolf’s definition, he defines a thread as “events”; however, I am arguing that the Pevensie children are each a narrative thread. The purpose of arguing this is due to the family being a crucial factor to the series: without the Pevensies, majority of events in the Narnia series would not be able to take place because they are a domino effect of the Pevensies’ heroic deeds in *The Lion, the Witch and the Wardrobe*. In my argument, each Pevensie will represent a narrative thread (which I will describe each individually later) that are based on who they are as an individual: their character traits, personalities, opinions, beliefs, etc.
Next, a narrative braid is defined as “narrative threads taking place within the same world which become grouped together due to the fact that they share the same themes, characters, objects, locations, events, or chains of cause-and-effect” (Wolf 378). When each Pevensie thread is woven together, the threads form into a narrative braid that allows them to contribute their individual differences to the group for the cause of saving Narnia.

Lastly, Wolf describes a narrative fabric as “a structure that results when a narrative or world has enough detail and events such that one can trace the events to individual characters or locations over time…” (Wolf 378). For Narnia, any thread and braid (in any form of media) that contributes to the series are interwoven together along with the Pevensie braid, creating the narrative fabric of Narnia. While there are numerous threads and braids that contribute to the Narnian fabric, the Pevensie family plays a vital role in weaving and tying in the others together into a close-knit fabric.

Wolf notes “how an audience first enters into an imaginary world, and the sequence in the various works making it up are experienced, can greatly shape the audiences’ experience of the world” (Wolf 265). For instance, if an individual is introduced to the world of Narnia by watching the films and then decides to read the series, how they envision the world as they are reading will be based on what they have seen in the films. Even if there are differences (addition or removal of certain scenes, characters, etc.), each of them contributes — as their own threads and braids — to the world-building fabric.

Jenkins & Convergence

Jenkins defines convergence as “a word that describes technological, industrial, cultural, and social changes in the ways media circulates within our culture” that “is an ongoing process or series of intersections between different media systems” (Jenkins 322). The Narnia novels
included illustrations by Pauline Baynes, which means they were always a form of multimedia; however, the visual component for the series became prominent with the BBC television adaptations starting in the 1980s onward.

Transmedia storytelling is important in Jenkins’s discussion of convergence. In this time and age of technology, various media platforms have impacted how imaginary worlds have spread beyond books, creating a culture of endless new possibilities. In the Narnia series, each media will contribute something new to one’s knowledge and understanding of Narnia as a world. For example, Edmund devours the White Witch’s Turkish Delight in *The Lion, the Witch and the Wardrobe*, but some readers (including myself) are not familiar with this particular candy; however, these readers can refer to Dinah Bucholz’s *The Unofficial Narnia Cookbook* (an example of a transmedia text) for the recipe for Turkish Delight to learn what it is, what ingredients are needed, and how to make it. This also can give readers a hands-on experience by making and eating it themselves, gaining not only a tangible way for them to immerse themselves into the story, but also to create connections to the story - the candy is, after all, used in the story to persuade Edmund to side (at first) with the White Witch.

In addition to these terms, Jenkins also discusses additive comprehension within texts and media. He defines the term as “the expansion of interpretive possibility that occurs when fictional franchises are extended across multiple texts and media” (Jenkins 319). This comes into play, for instance, the films and video games when game creators expand upon or develops a level based upon a scene not explored or not explored in detail in the films.

**Lewis & Narnia**

C.S. Lewis wrote *The Lion, the Witch and the Wardrobe*, the first book in *The Chronicles of Narnia* series, in 1950. He would quickly write six other books in the series: *Prince Caspian*
(1951), The Voyage of the Dawn Treader (1952), The Silver Chair (1953), The Horse and His Boy (1954), The Magician’s Nephew (1955), and The Last Battle (1956). However, the narrative (in-world) order of the series - The Magician’s Nephew; The Lion, the Witch and the Wardrobe; The Horse and His Boy; Prince Caspian; The Voyage of the Dawn Treader; The Silver Chair; and The Last Battle - is the preferred order for reading the series because it helps readers see the history of Narnia from beginning to end. I could argue (and argue against) that reading in publishing order, but this could also lose the reader’s feeling of mystery behind certain events and objects. For Lewis, the idea of allowing children, especially the Pevensie children, to be the key heroes of the series aligns with his thoughts in his 1952 essay, “On Three Ways for Writing for Children.” He notes that “Since it is so likely that children will meet cruel enemies, let them at least have heard of brave knights and heroic courage” (Lewis 47). As amazing as it would be, the chances of a child finding a magical world in their wardrobe or closet and having to defeat a villain is zero to none; however, most children do encounter bullies. Lewis created the world of Narnia as a way for children to learn how to face their enemies. While Lewis does not mean that children should literally fight their enemies with swords and bows and arrows, he does want children to learn how to stand up for themselves and for others when they do face the bully on the playground in order to maintain a safe and peaceful playing environment for everyone.

In addition, he remarks, “I am almost inclined to set it up as a canon that a children’s story which is enjoyed only by children is a bad children’s story” (Lewis 37). This idea, in my opinion, is what Lewis strove for when creating the Narnia series. While Narnia is usually categorized as a children’s series, Lewis believes that if a children’s book is only for children, then it has missed its whole purpose. The purpose of children’s books is to not only explore their imagination and embrace their childhood, but also it is to learn the lessons that the books teach,
to utilize them as they grow up into adults, and to pass them down to their children or to other children around them. This, I believe, is why the *Narnia* series has continued to maintain its popularity amongst readers of all ages since its publication in the 1950s.

**The Threads of the Pevensie Braid**

The Pevensie children’s differences are what unify them into a braid. Before discussing the Pevensie Braid as a whole, it is important to deconstruct the braid momentarily into the individual threads: the Pevensie children. By exploring each of these characters as individuals, I can analyze how each character contributes to the braid and their success.

For Lucy, the youngest Pevensie, her strong and grounded faith in the world of Narnia is what sets her apart from her siblings. Paul F. Ford notes in *Companion to Narnia: A Complete Guide to the Magical World of C.S. Lewis’s The Chronicles of Narnia* that “faith, as Lewis sees it, helps to keep reason alive and fighting when feelings, circumstances, and imagination tempt one to abandon what one knows to be true” (Ford 207). When she enters the world of Narnia for the first time, she “felt a little frightened, but she felt very inquisitive and excited as well” (Lewis 13), allowing her childlike curiosity to motivate her to explore this new world alone. When her siblings do not believe her, she — as Lewis describes — was “very miserable” about the entire situation. Lewis comments that Lucy “could have made it up with the others quite easily at any moment if she could have brought herself to say that the whole thing was only a story made up for fun. But Lucy was a very truthful girl and she knew that she was really in the right; and she could not bring herself to say this” (Lewis 28-29). While this was a discouraging moment for Lucy, she refused to compromise her faith to avoid being picked on by her siblings (especially Edmund). In the end, it is her faith that would not only lead her and her siblings to have adventures of a lifetime, ultimately leading to a “long and happy reign” (Lewis 166) as the Kings
and Queens of Narnia, but also to teach them to have faith in the midst of hardships that they would face, even when it seems impossible.

When the reader first meets Edmund, the second youngest Pevensie, they see that he is the most troublesome sibling out of the braid; however, his ability to learn from his mistakes transforms him into the wise and just king he becomes. In the beginning of the novel, Edmund is constantly being “spiteful” (Lewis 29) towards his siblings when he either does not get his way or is being told what he should do. In sights of revenge against his “stuck-up, self-satisfied prigs” (Lewis 55) siblings, Edmund—unweaving himself from the braid—sets out on his own to the White Witch’s castle, not realizing (to some extent) what she has in mind. Despite being promised “Turkish Delight...to be a Prince (and later a King) and to pay Peter out for calling him a beast” (Lewis 88), Edmund became a prisoner and a pawn in the White Witch’s plans. Edmund had become so selfish and so consumed in what he wanted (sweets, power, and revenge) that he ignores the warnings about the White Witch, realizing that he puts his siblings’ lives in danger by doing so; however, not all is lost for Edmund as he is rescued by Aslan’s army and forgiven by his siblings. From this moment, he applies what he has learned during his time with the White Witch, especially in times where he can use it to the Narnian’s advantage. In the battle, Edmund caught the mistake Peter and the other troops were making: they were going after the White Witch rather than her wand. Lewis describes that Edmund “had sense to bring his sword smashing down on her wand instead of trying to go for her directly and simply getting made a statue himself for his pains,” giving the Narnians “some chance” (Lewis 162) until Aslan arrives. Had Edmund not been a prisoner of the White Witch, he would have not known that the wand was a crucial tool for her and, like everyone else, would not think to destroy it, then the course of Narnia’s history could have been altered for the worse. In other words, while Edmund
ultimately regrets his actions against his family, his journey gave him insight that no one else had; therefore, his ability to learn from mistakes contributes to the braid in terms of decision-making and leadership.

Susan, the oldest sister, relies on her logical state of mind to rationalize any situation that arises. Although her logical thinking ultimately leads her away from Narnia by the end of the series, she does put it to good use while they are there. When all four Pevensies are in Narnia and decide to go exploring, Susan creates a “very sensible plan” (Lewis 54) when borrowing the Professor’s coats, noting that “‘it isn’t as if we wanted to take them out of the house; we shan’t take them even out of the wardrobe’” (Lewis 54). As the family’s mother-substitute, Susan wants to be sure that everyone is prepared to travel through the winter woods. While she says this in a comical manner, this illustrates her logical (and often literal) thinking in the context of solving a solution, since they are literally in the wardrobe. Her practical and logical thinking also compels her to know and understand a situation, rather than simply experiencing it. An example is when she witnesses Aslan’s death and resurrection. Resurrection is illogical - Aslan is dead - so Susan asks him the meaning of what happened. Aslan shares the logical reasoning behind his actions:

“‘It means,’ said Aslan, ‘that though the Witch knew the Deep Magic, there is a magic deeper still which she did not know. Her knowledge goes back only to the dawn of Time. But if she could have looked a little further back, into the stillness and the darkness before Time dawned, she would have read there a different incantation. She would have known that when a willing victim who had committed no treachery was killed in a traitor’s stead, the Table would crack and Death itself would start working backwards’” (Lewis 148).
Because Susan “is no longer enough of a simple child who can throw herself into whatever is happening...[because] like an adult, she has to know” (Ford 416) what everything means, she must search for a reason explaining how Aslan’s resurrection occurred rather than just simply embracing the miracle that she and Lucy witness.

Peter, the oldest of the four, is the natural amongst his siblings. Readers sees Peter in this manner in three forms, the first being how he defends the people around him. For example, he faces his first battle against Maugrim, a wolf and Captain of the White Witch’s Secret Police, in order to save Susan. Although “he did not feel very brave; indeed, he felt he was going to be sick,” it “made no difference to what he had to do” (Lewis 120). He knows that, despite how sick he feels or how young he is, he must save his sister, even if it meant losing his own life. At the end of this battle, he kills Maugrim and is knighted Sir Peter Wolf’s-Bane by Aslan. Peter also shows maturity as a young leader by owning up to his mistakes. When the children first meet Aslan, Aslan greets each of them by name - and asks for Edmund’s whereabouts. Although Mr. Beaver shares with Aslan that Edmund has “tried to betray [his siblings] and joined the White Witch,” (Lewis 117), Peter then responds, “That was partly my fault, Aslan. I was angry with him and I think that helped him to go wrong” (Lewis 118). While it is ultimately Edmund’s decision to go to the White Witch, Peter could have easily allowed Edmund to receive all that he deserves for the decisions he made, but Peter realizes that his mistakes heavily influence the people around him, especially being the future king. By confessing his mistakes to Aslan, he puts forth effort to make things right, something that takes courage to do. Ultimately, Peter (despite his fears) accepts the lessons of his errors and grows from his failures. When the news spread that Aslan may not be at the battle, “Peter was feeling uncomfortable with the idea of fighting the battle on his own; the news...had come as a great shock to him” (Lewis 133). As a
young boy, Peter could not have the knowledge or experience of fighting a war, much less leading an army; however, he remembers what Aslan has taught him and applies it to leading the Narnian army against the White Witch. By doing so, “his face was so pale and stern and he seemed so much older” (Lewis 162) after the battle was over, showing a sign of growth in his leadership despite being so young.

Transubstantiation - The Pevensie Braid as a Faith Community

The act of transubstantiation is “the change by which the substance (though not the appearance) of the bread and wine in the Eucharist becomes Christ’s Real Presence—that is, his body and blood” (Britannica.com). In other words, I think my perceptions of transubstantiation match those felt by Lewis: a symbolic union when partaking in the Lord’s Supper at church as a way of remembering and giving thanks for Christ’s sacrifice and resurrection. So, one may ask: how does transubstantiation interweave itself into the Pevensie Braid? Lewis incorporates many Christian allusions into the series, and the concept of transubstantiation is an overarching theme for the Pevensie family: the four must become transubstantiated, or formed, into a singular body in order to overcome the obstacles they encounter.

In the cases that one or more of them attempt to exit the braid — whether it be from betrayal, disbelief, or disagreement — the four become unsuccessful and face consequential challenges as a result. One of the primary examples in the novel is Edmund’s betrayal. Full of resentment and bitter feelings towards his siblings (especially Peter), he is easily influenced by the White Witch when she tells him that he could be the future king and rule over his siblings. While Edmund faces consequences of his own, the siblings suffer in having to escape the Witch’s wolves in order to reach Aslan. Because of Edmund’s attempt of escaping the braid, each Pevensie suffers; however, when their army goes to battle against the White Witch, the four
works together: Susan and Lucy accompany Aslan to the Witch’s castle to rescue the Narnians who have been turned to stone while Peter and Edmund fight in the battle. Although the siblings are separated physically, the faith they have weaves them together into a singular body. Through this, the Pevensies represent a faith community in a fictional text, identical to how Christians are united as a single body: “For as the body is one and has many parts, and all the parts of that body, though many, are one body—so also is Christ” (Holman Christian Standard Bible, 1 Cor. 12:12). In terms of the Pevensies, each one has their own qualities that composes who they are as an individual, and together, they are united as a singular unit while they each contribute to the cause in their unique ways.

**Adaptations**

The Pevensie’s family dynamic is more overt in the films as they show the relationship between the siblings as part of a family unit. In the Disney version of *The Lion, the Witch and the Wardrobe*, Peter (after retrieving Edmund from the house during the air raids) aggravatedly asks Edmund, “Why can’t you just do as you’re told?” In reply, Edmund gives him an angry look. Throughout the film, the viewer repeatedly sees the tension between the two brothers; audiences do not witness reconciliation until after Edmund’s rescue from the White Witch. After the battle, Peter hugs Edmund (after Edmund’s near-death) and repeats the line (in slightly different wording): “When are you gonna learn to do as you’re told?” This time, Peter’s tone is light-hearted and relieved -- and Edmund smiles back, echoing Peter’s own feelings. This moment shows the viewer how the film adaptors build upon the tension between these two siblings, but also the positive change in their relationship. Because the two brothers make amends, they can be more cooperative and unified with their sisters and in turn become a transubstantiated braid, rather than continuing their frayed relationship.
In addition, the film adaptors’ decisions (through additive comprehension) create opportunities to develop unexplored moments from the novels. In the BBC version of the story, the scene where Edmund travels to the White Witch’s castle shows him literally justifying his actions to his conscience (presented as a ghost-like figure of himself), while the novel simply shares a gist of his inner dialogue. Because of this change in the film, the viewer sees this is like the “angel on one shoulder and devil on another” metaphor. The choice to visualize and explain Edmund’s inner thoughts shows a conflict in his motivation at that moment of the story, giving the reader more insight into Edmund’s character.

**Video Games**

In the video games, the idea of the Pevensies being interchangeable reflects how each of the Pevensies contributes to the braid through their abilities in the games. In the Nintendo Wii *Prince Caspian*, the player can select any of the Pevensies (or other characters depending on the level of the game), either for simple enjoyment or to use a specific character to complete a task. For example, Peter is given authority over the gravelling hook to scale walls and cliffs, while Susan uses her bow and arrows to shoot defensively and bring down items from a great height to complete a task. Without each of their special abilities, not only would certain tasks would be difficult to complete and thus allows them to contribute their unique qualities while remaining a singular body through transubstantiation.

On the other hand, the only playable characters in Nintendo Game Boy Advanced version of *The Lion, the Witch, and the Wardrobe* are the four Pevensies; however, each level has a pre-selected Pevensie that the character must play as. While the characters in this game still have their different weapons, the special abilities given to the characters throughout the game are available in every level, no matter which Pevensie character is assigned to the level. Through
this, the Pevensies function as a single transubstantiated character because the player may have to select a Pevensie to play as based on which special ability is needed to complete a certain task or level. Eventually, each of the Pevensies will be played during the game based on the task at hand and shows that the separate tasks that they accomplish unifies the siblings.

Like the films, the games show more developed scenes and possibilities through additive comprehension and how it impacts the braid. In the Disney film *Prince Caspian*, the children are transported into Narnia from the train station to inside a cave, but all that is seen of the cave is when the Pevensies walk out of it onto the coastline; on the other hand, the Nintendo Wii game utilizes the cave for one of the levels of the game, in which Peter and Edmund enter it to retrieve a grappling hook Peter will use throughout the game. While the film does not allow the characters to explore or interact with the cave, the game – using additive comprehension – creates new possibilities, examining what the cave could be like or explain how the Pevensies reach the ruins of their beloved Cair Paravel on the cliff above.

**The Battle for Narnia - Exploring the Scene in Various Media**

One of the most iconic scenes in the series is the battle against the White Witch. When comparing the scene between the different media, there is the standard plot line of the scene: (1) the battle begins, (2) the White Witch has the upper hand (as long as she has her wand), (3) Edmund realize this and destroys it, getting injured in the process, (4) Aslan arrives (with Lucy and Susan) and kills the White Witch, (5) her army retreats, giving the Narnians the victory, (6) Peter, Susan, and Lucy reunite before finding Edmund, and (7) Lucy uses her cordial to heal Edmund and injured Narnians. Film directors keep these elements consistent and utilize transmedia storytelling to envision the battle while creating an emotional and memorable scene between the Pevensie children.
Differences are thus key. The Pevensies’ costuming differs between adaptations and media, and the differences convey meaning. While the novel does not express what the children were wearing at the time of the battle, the director of the films takes the initiative in deciding what the children wear. In the BBC version of the scene, Peter and Edmund are dressed in their button-down shirts and khaki shorts, only adding swords and shields; Susan and Lucy wear the same dresses they have worn since they entered the wardrobe. In the Disney version, the boys are dressed in full armor for battle and the girls are given Narnian-style dresses. From these two wardrobe differences, the BBC version reminds the viewer that the Pevensies are still children even though they are facing adult circumstances, but in the Disney version, the children (especially the boys) are given the opportunity to step in these adult roles and handle the circumstances they found themselves in, showing signs of maturity and personal growth of courage, endurance, and perseverance. While they each grow in their individual ways, what they learn during their growth is woven into their individual threads as well as the Pevensie Braid. From this, they continue to grow together through transubstantiation as a cohesive body unit as they rule Narnia.

Another aspect of the scene is the siblings’ reactions to Edmund’s injury. In the novel, the sisters (and the reader) do not find out what happens to Edmund until after the battle is over. The only detailed reactions readers get are from Peter, telling his sisters and Aslan that “he was terribly wounded” and that they “must go and see him.” and Lucy, whose “hands trembled so much that she could hardly undo the stopper” of her cordial (Lewis 162). In both the BBC and Disney versions, the viewer sees Peter witness the White Witch injure Edmund, but the two versions show Peter reacting differently. The BBC version shows Peter concerned for Edmund but calm enough to try and take on the White Witch; Aslan returns before he has the opportunity.
By contrast, Disney’s Peter acts on his emotions as he (inaudibly to the viewer) screams for Edmund as the White Witch stabs him, causing Peter to act in rage as he combats her until Aslan returns. Despite how Peter reacts in the two adaptations, it is why he reacts that is the most important: he would do anything for his family, even if it meant risking his life for them.

Lucy’s emotions of Edmund’s injury factor in her reaction to Aslan’s request to help the other Narnians in the different medias. In the novel and the BBC film, Lucy, who was “looking eagerly into Edmund’s pale face and wondering if the cordial would have any result,” replies “crossly” to Aslan. He, in “a graver voice,” reminds her that “others also are at the point of death. Must more people die for Edmund?” (Lewis 163). While Lucy is right to be concerned for her wounded brother, she is so focused on seeing whether her cordial works, she does not really internalize that there are other Narnians around her that also needs help. Aslan — in a stern yet subtle reproach, suitable for instructing young Lucy — teaches her that although there will be highly personal circumstances that she will face (or in that moment, is facing), she cannot be blind to the needs and concerns of others. Her reaction differs in the Disney version because the cordial has an immediate effect: Edmund is healed within moments. When Aslan approaches the siblings, he reversed the power of the White Witch’s wand on one of the Narnians, which gives Lucy the idea to help him using her cordial. Disney sets up Lucy as a caring and selfless individual, like the BBC, but because she gets to see the full effects of her cordial in this version, she can be just as eager to help Narnians as she was Edmund.

Susan’s reactions do not stand out as much as Peter’s and Lucy’s in every version of the scene. While both the BBC and Disney film adaptations show her concern for Edmund, Lewis does not give an account of how she reacted because she, I argue, is a character that is in Narnia because she has to be rather than wanting to come. Susan does not want to be in Narnia and
often complains about being there, but once there wants to do what is right; however, the prophecy requires two Sons of Adam and two Daughters of Eve to defeat the White Witch and become the Kings and Queens of Narnia. Had Susan returned to England, the prophecy would not be fulfilled; therefore, she must be present for the sake of the story, but it is not a character-driven choice. Her ultimate decision to leave Narnia comes in *The Last Battle*, where Susan finally leaves the Pevensie Braid in terms of the narrative but not in terms of family.

**Conclusion**

Through the lens of transmedia storytelling, it is evident that the Pevensie Braid is vital to the Narnia world-building fabric. The way that the Pevensies are interwoven creates the opportunity of growth through their relationships with one another, the Narnians they interact with, and the world itself through each medium (novel, film, game). Transmedia storytelling allows each medium to influence how audiences perceive Narnia because the act of transubstantiation allows the Pevensies to represent a faith community.

The Pevensies leave a powerful impact upon the narrative fabric of *The Chronicles of Narnia*. No matter if they are in Narnia or in England, their actions have a major effect in Narnia’s remaining history, and, when needed, they are brought back to preserve Narnia as a safe and peaceful place for all who live there. Although their adventures eventually come to an end in Lewis’s *The Last Battle*, the impact that they made in Narnia will not.
Works Cited


The Role of Executive Functioning on Pain Sensitivity

By: Asia Wiggins

Abstract

The purpose of this research was to examine the interrelationships between psychological factors, such as pain catastrophizing, cognitive inhibition, and perceived pain intensity following induced noxious cold pain. Catastrophizing may interfere with inhibiting attention to pain in order to engage in other tasks. Therefore, we hypothesized that greater cognitive inhibition would mediate the effects of pain catastrophizing on perceived pain severity at threshold and tolerance in experimental pain. 62 healthy undergraduate students population participated in the study. Participants’ level of catastrophizing about prior painful experiences was measured as well as their performance on a color-word inhibition task (Stroop procedure). Participants then underwent the cold pressor test to measure pain intensity at threshold and tolerance. Effects of mediation were tested using an established regression-based approach. The level of pain catastrophizing of prior painful experiences was inversely related to color-word inhibition performance. As hypothesized, performance on the inhibition task mediated the relationship between prior pain catastrophizing and participant’s reported pain intensity at threshold. However, performance on the cognitive inhibition task did not mediate the relationship between catastrophizing and pain intensity at tolerance. Pain catastrophizing exerts its effect on pain intensity through decreased cognitive inhibition at pain threshold, but not tolerance. Our perception of pain and painful experiences, based on cognition and affect, can determine the overall physical experience. Improving cognitive inhibition skills may reduce pain sensitivity through larger studies with clinical pain populations are needed.
Summary: Data were analyzed from an experimental pain procedure assessing pain intensity at threshold and tolerance. Results revealed cognitive inhibition to mediate the relationship between catastrophizing and pain intensity at threshold, but not at tolerance. Executive functions, such as cognitive inhibition, may be a point of target in reducing pain sensitivity. (Key Words: pain catastrophizing, Stroop, cognitive inhibition, pain outcomes.)

Introduction

Pain has become a major public health problem in the U.S., with approximately one-fifth of the population experiencing chronic pain and 8% experiencing pain to such a degree that engaging in important life activities is significantly diminished. (Dahlhamer, Lucas, Zelaya, et al., 2018). Given the high number of those experiencing pain, it is not surprising that the direct (e.g., medical costs) and indirect (e.g., lost wages and productivity) cost of pain is upwards of $560 billion annually (Dahlhamer et al., 2018). While the impact of pain has increased, effective treatment options have been elusive. At least in the last few decades, a predominant method of pain management has included opioid therapy, in both acute and long-term regimens. Approximately 60% with non-cancer pain are treated with opioids and 20% of those have been on long-term opioid therapy (Deyo et al.). Unfortunately, it is the latter group who has experienced increased psychological distress and health care use since initiating therapy with these medications. Identifying effective pain management strategies has been precluded by limited scope of how we have viewed the human pain experience as being purely nociceptive, often excluding cognitive and affective factors that contribute to pain.

The impact that chronic pain has on many individuals is physical, psychological, and social. According to a study assessing the impact of chronic illnesses on patients, chronic illness had the greatest effect on psychological functioning depending on the diagnosis, duration of
disease, and economic status (Nurs, 1995). Illnesses like these that have large psychological affects is a huge concern because this could potentially impact the overall health of the patient on top of the chronic illness itself. For example, depending on the psychological effect, an patient’s adherence could possibly decrease which could lead to lead to more deaths due to chronic pain disorders and its affects.

Many treatments associated with chronic pain primarily focuses on the psychical/sensory component related to pain. The primary treatments used in the medical field today to treat chronic illnesses include options like nonsteroidal anti-inflammatory drugs and acetaminophen (NSAID’s), muscles relaxants, opioids, and muscles relaxants. However, most of these options only provide temporary comfort and some are offers more “cost” than “benefit”. For example, according to the American Society of Regional Anesthesia and Pain Medicine, when taking NSAID’s (in particular) for an extended period of time or in large amounts, they may have negative effects on the kidneys, clotting of blood and gastrointestinal system, bleeding ulcers, increases cardiovascular risks, and liver failure may occur (2019).

The most common treatment used to treat chronic pain patients is opioids. However, they cause complications as well with many side effects including constipation, drowsiness, and nausea. Although, these may be considered minor, this could be annoying when a person is already suffering from chronic pain alone and have to complete daily tasks or routines. Furthermore, the biggest risk associated with opioids is the concern of addiction because they are considered to be narcotics. Tolerance and physical dependence are the biggest factors, however, psychologically, some patients may be more susceptible to addition than others, which could lead to the abuse of the treatment (medication). Although there are treatments for patients suffering from chronic pain, the effectiveness of the drugs are fairly low and can sometimes
cause more problems for the patients already living in pain. Maintaining these simplistic approaches and neglecting other important components, such as cognitive and emotional aspects of pain, has led to ineffective management.

Pain is no longer understood as a simple function of a noxious stimulus; rather, pain perception is multidimensional, involving an interconnected matrix of neural regions reflecting the sensory, affective and cognitive components of pain (Melzack, 1999). Pain catastrophizing is a well-established construct in the pain literature contributing to the cognitive component of the human pain experience. Pain catastrophizing has been conceptualized as cognitive appraisal that powerfully influences pain outcomes (Jensen, Turner, Romano, & Karoly, 1991; Sullivan et al., 2001). High levels of catastrophizing are associated with increased task interference during experimental pain in healthy individuals (Crombez, Eccleston, Baeyens, & Eelen, 1998) and among those with chronic low back pain (Crombez, Eccleston, Van den Broeck, Van Houdenhove, & Goubert, 2002).

Pain catastrophizing is believed to enhance one’s attention to pain, reducing the capacity to attend to other tasks or stimuli (Sullivan et al. 2001). Healthy, pain-free individuals who catastrophized about prior painful experiences had increased difficulty shifting attention from pain to non-pain related stimuli (van Damme, Crombez, & Eccleston, 2004). Using the Stroop procedure as a distraction during evoked thermal pain among individuals with fibromyalgia, Ellingson and colleagues (2018) found that those with less catastrophizing about pain could better attend to the task and rated their pain as less severe. This suggests that pain catastrophizing may interfere from effectively inhibiting attention to pain to engage in other tasks or goal-driven activities.
Cognitive inhibition is considered a core executive function that involves the ability to override more automatic emotional or behavioral impulses to external stimuli in order to remain engaged in goal-driven activity (Miyake et al., 2000; Diamond, 2013). Brain regions associated with executive functions most notably includes the prefrontal cortex, with lateral regions of the prefrontal cortex being associated with cognitive inhibition (Szczepanski & Knight, 2014). The prefrontal cortex is also implicated in the processing of pain when experienced by healthy, pain-free individuals and individuals with chronic pain (Apkarian, Bushell, Treede, & Zubieta, 2005). Activity in prefrontal regions among those with chronic pain may reflect the role of cognitive inhibition or “top-down” modulation of the pain experience (Wilcox et al., 2015).

In a functional neuroimaging study, Loggia and others (2015) found a relationship between the level of pain catastrophizing and brain activity in the right lateral prefrontal cortex in the context of evoked deep tissue pain. Moreover, activity in the lateral prefrontal cortex mediated the relationship between catastrophizing and self-reported pain intensity, whereby catastrophizing exerted a hyperalgesic effect when activity in this region was low (Loggia et al., 2015). The lateral prefrontal cortex is an area involved in emotional suppression and performance on the Stroop task, a neuropsychological test of cognitive inhibition, with activity in the prefrontal cortex significantly and positively related to better performance on the Stroop (Friese et al., 2013). Among healthy participants without chronic pain, performance on a Stroop procedure was inversely related to pain intensity and unpleasantness of induced noxious cold by the by cold pressor task (Oosterman, Dijkerman, Kessels, & Scherder, 2010; Bjekic et al., 2018) but not other core components of executive functioning, such as mental set shifting or working memory. This suggests catastrophizing is related to cognitive inhibition, which in turn may play a role in descending modulation of pain.
Considering the aforementioned literature to date, we therefore know that 1) performance on a cognitive inhibition task is associated with experimentally induced pain outcomes, 2) pain catastrophizing is related to cognitive inhibition and brain regions associated with cognitive inhibition, and 3) that at least in those with fibromyalgia, activity in prefrontal cortices buffered the negative effects of pain catastrophizing on perceived pain intensity. Bridging these previous findings from other studies, we therefore hypothesized that performance on the Stroop, a neuropsychological correlate of cognitive inhibition in the prefrontal cortex (Friese et al., 2013), would mediate the relationship between catastrophizing and reported pain intensity during evoked pain, as indicated by the model in Figure 1.

![Figure 1. Hypothesized model of mediation, where effects of pain catastrophizing transmits its effect on pain intensity through greater difficulty with cognitive inhibition.](image)

**Methods**

**Participants**

Sixty-two 62 healthy individuals were recruited from an undergraduate student population at the University of Montevallo. Exclusion criteria for participating in this study included experiencing any pain at the time of the study, experiencing any significant pain for more than two weeks duration in the last three months, or any history of chronic, persistent pain (e.g., pain lasting more than 3 months). Participants were also excluded if they had a history of
cardiovascular disease, Reynaud’s disease or other circulatory problems, or any current injury to their non-dominant hand. This study was approved by the University of Montevallo Institutional Review Board and all participants gave written informed consent for the study as required by the IRB. Participants were compensated for their involvement in the study.

Measures

*Pain Intensity.* A 0-10 numeric rating scale (NRS) was used to measure pain intensity, with 0 = “no pain” and 10 = “absolute worst pain.” NRS ratings have been shown to be valid measures of pain intensity (Jensen et al., 2001).

*Pain Catastrophizing.* The primary psychosocial variable of interest is the Pain Catastrophizing scale that measures ones tendency to catastrophize situations they have previously been in (PCS; Sullivan, Bishop, & Pivik, 1995). This is a 13-item self-report scale where participants rate the degree to which they experienced the thought or feeling as indicated by the given statements on a scale of 0 (being not at all) to 4 (being all the time). The score range for this scale is 0-52. The higher the score, the more catastrophizing an individual tends to engage in. The PCS has been shown to have good internal consistency (Chronbach’s alpha = .87), test-retest reliability and construct validity (Sullivan et al., 1995).

*Cognitive Inhibition.* The experimental pain performance measure used in this study was a Color-Word Inhibition condition from the Color-Word Interference Test of the Delis-Kaplan Executive Function System (D-KEFS; Delis, Kaplan, & Kramer, 2001). Prior to the CPT, participants were given a color word interference test to complete (also known as the Stroop test). This test requires the participants to first read a list of words, printed in black ink, as quickly as possible on a stimulus sheet. Participants are then presented with a different stimulus sheet comprised of printed words that spell a dissonant color. For example, the participant is
given the word “red” with the ink color blue. They are asked to state the ink color, and not the word, as quickly as possible for a maximum time limit of 180 seconds. Both the time to complete and the number of errors made were recorded for this task.

**Experimental Pain**

The cold pressor test (CPT) was used to assess participants’ pain sensitivity. The CPT is a safe and noninvasive experimental pain procedure that is commonly used in both clinical and non-clinical settings. An apparatus used to conduct CPT was a 32-inch height by 22-inch diameter refrigerated circulating water bath, with an inner tank that was 10 inches in diameter by 11 inches in depth that was filled with water and where participants placed their hands. Water was maintained at 1–2 degrees Celsius by constant circulation with an internal pump in order to avoid heat buildup around the hand while immersed. Participants were asked to immerse their non-dominant hand in the water up to their wrist. The maximum immersion time was set at 120 seconds, though participants were told to keep their hand in the water as long as they could tolerate. If 120 seconds passed before participants’ tolerance, they were asked to remove their hand.

**Procedures**

Following written consent, participants completed baseline questionnaires that included the PCS. Heart rate, diastolic and systolic blood pressure was measured using a portable digital blood pressure cuff and a portable heart rate sensor that was placed on the index finger of the participant’s non-dominant hand prior to any procedures. After completing the PCS and measurement of vitals, but prior to the CPT, participants were given the CW Interference task. Following the CW Interference task, participants then underwent the CPT. Participants were asked to indicate, following cold water immersion, the point at which they first experienced pain.
onset and to provide an NRS pain rating (NRS at pain threshold). They were also asked to
provide an NRS pain rating at the point that they withdrew their hand from the water or 120
seconds had passed from initial immersion (NRS at pain tolerance). Time, in seconds, to reach
both pain threshold and tolerance were also recorded.

Data Analysis

Data were analyzed using SPSS, version 25 (IBM, Chicago, IL). Pearson correlations
were used to evaluate simple linear relationships between continuous demographic variables,
PCS scores, CW Interference scaled scores, and pain ratings at threshold and tolerance. Given
the small number of individuals who identified as Hispanic or of other race, we collapsed across
minority groups (African American, Hispanic, Other) and used a dichotomous variable of
minority/non-minority as a covariate in the mediation analyses. Gender was also included as a
covariate as well as time to pain threshold (modeling pain intensity at threshold) and time to
tolerance (when modeling pain intensity at tolerance). To test for mediation, the general steps to
establish mediation outlined by Baron and Kenny (1986) were followed, but the PROCESS
macro add-on for SPSS by Hayes (2018) was used to statistically test for mediation. Using
PROCESS, mediation was determined by obtaining a 95% confidence interval based on a
bootstrapping procedure with 10000 resamples using a seed of 51019. In mediation analyses, the
bootstrapping method determines whether the indirect effect in a hypothesized mediation model
is significantly different from zero, and has become an established alternative to normal-theory
tests, such as the Sobel test, that assume normality of the indirect effects (Hayes, 2018). If the
general steps to mediation were fulfilled (e.g., predictor has significant association with the
outcome, the predictor is significantly associated with the proposed mediator, the proposed
mediator is significantly associated with the outcome in the presence of the predictor, but not
vice versa) and the bootstrapped confidence interval testing the significance of the indirect effect was significant, then it was determined that performance on the CW Interference task as a mediator was established.

**Results**

Means and standard deviations of demographic, predictor and outcome variables are shown in Table 2. There were 41 participants who were Caucasian (66.1%), 16 who were African American (25.8%), two who were Hispanic (3.2%) and three who identified as mixed or of other ethnicity (4.8%). The sample was comprised of 28 men (45.2%) and 34 women (54.8%).

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<th>SD</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCS</td>
<td>19.40</td>
<td>9.56</td>
<td>3-42</td>
</tr>
<tr>
<td>C-W Inhibition</td>
<td>9.73</td>
<td>2.51</td>
<td>1-12</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Outcome Measures</th>
<th>M</th>
<th>SD</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRS Pain at Threshold</td>
<td>4.63</td>
<td>1.76</td>
<td>1-10</td>
</tr>
<tr>
<td>NRS Pain at Tolerance</td>
<td>7.83</td>
<td>1.76</td>
<td>4-10</td>
</tr>
</tbody>
</table>

*Note. PCS = Pain Catastrophizing Scale; CW Inhibition=Color-Word Inhibition; NRS=Numeric Rating Scale.*

Zero-order correlations for all relevant variables are included in Table 3. As expected, years of education was positively correlated with age. A negative correlation was found between CW Inhibition and age, which is likely due to the fact that the CW Inhibition scaled score was calculated based on age (e.g., the younger the person is, the less impact errors have on the CW Inhibition score). A negative correlation was also found between performance on the CW Inhibition task and PCS score. As PCS increased, performance on the CW Inhibition task decreased (i.e., poorer performance). There were significant positive correlations found between the pain ratings at pain threshold and pain tolerance as well as the time to reach pain tolerance.
Performance on the CW Inhibition task negatively correlated with pain rating at threshold, such that poorer performance on the task was correlated with increased perceived pain severity when participants first experienced pain during the CPT. Lastly, among the experimental pain outcome variables, time to pain threshold and pain tolerance was positively correlated, while pain ratings at both threshold and tolerance was negatively correlated with time to threshold and time to tolerance, respectively.

Table 3. Zero Order Correlations for Study Variables

<table>
<thead>
<tr>
<th></th>
<th>Age</th>
<th>Educ.</th>
<th>PCS</th>
<th>CW Inhibition</th>
<th>Time (Thr)</th>
<th>NRS (Thr)</th>
<th>Time (Tol)</th>
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</thead>
<tbody>
<tr>
<td>Education</td>
<td>.489**</td>
<td>--</td>
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<tr>
<td>PCS</td>
<td>.217</td>
<td>.058</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CW Inhibition</td>
<td>-</td>
<td>- .055</td>
<td>- .286*</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time (Thr)</td>
<td>-.064</td>
<td>.022</td>
<td>-.072</td>
<td>-.023</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>NRS (Thr)</td>
<td>.012</td>
<td>-.057</td>
<td>.273*</td>
<td>-.322*</td>
<td>-.181</td>
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<td></td>
</tr>
<tr>
<td>Time (Tol)</td>
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<td>.140</td>
<td>-.422**</td>
<td>.165</td>
<td>.577**</td>
<td>-.331**</td>
<td>--</td>
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</tbody>
</table>
Tests of Mediation

After adjusting for important demographic covariates, the overall mediation model predicting NRS at pain threshold was significant and accounted for a 26.8% of the variance in NRS pain ratings at threshold ($F(4,56) = 4.100, p = .003, R^2 = .268$). As shown in Figure 1, step one of the mediation test (path c) confirmed results found in zero order correlations, indicating that the level of catastrophizing about past painful experiences predicted individuals’ pain ratings at threshold, $b = .045, t(57) = 2.042, p = .046$. Step two of mediation test (testing path a), revealed that PCS significantly predicted CW Inhibition score ($b = -.076, t(57) = -2.257, p = .028$), such that high catastrophizing about prior pain was related to reduced performance on the CW Inhibition task. In steps 3 & 4, performance on the CW Inhibition task was a significant predictor of NRS pain ratings at threshold (path b), $b = -.184, t(56) = -2.189, p = .033$. However, PCS scores no longer significantly predicted NRS pain threshold when in the presence CW Inhibition scaled scores (path c’), $b = .031, t(56) = 1.393, p = .169$. The mediation effect (path $a \times b$) of pain catastrophizing on NRS pain ratings at threshold through CW inhibition task performance had a bootstrapped unstandardized indirect effect of .014 with a 95% confidence interval of a 95% of 0.003 to 0.038. Thus, the indirect effect was significant. The directions within this indirect path (paths a and b) indicate that greater catastrophizing about past painful
experiences is associated with reduced cognitive inhibition on the CW Inhibition task, which is in turn associated with higher perceived pain at CPT threshold.

When testing mediation of the relationship between PCS and NRS ratings at pain tolerance, PCS did not significantly predict tolerance NRS pain ratings above and beyond included covariates, $b = .019, t(57) = 0.846, p = .401$), and only approached significance for predicting CW Interference scores in the presence of tolerance time, gender, and minority status ($b = -.069, t(57)=-1.865, p = .067$). The proposed mediator, CW Interference scores, was not significant in the presence of PCS scores ($b = .016, t(57) = .679, p = .500$). Time to achieve pain tolerance in the CPT was however significant above and beyond CW task performance, PCS scores, minority status, and gender ($b = -.022, t(56)=-3.454, p = .001$). Given that the initial paths in this proposed meditational model were not significant, it is not surprising that a bootstrapped unstandardized indirect effect of .003 had a 95% confidence interval that included zero (95% CI: -0.007 to 0.022).

**Discussion**

We hypothesized that one’s ability to cognitively inhibit, as measured by the Stroop procedure, would mediate the relationship between psychological factors of pain catastrophizing about painful experiences and perceived pain intensity during the CPT. Results from this study partially supported our hypotheses, in that pain catastrophizing transmitted its effect through decreased cognitive inhibition ability for perceived pain intensity at threshold, but not pain intensity at tolerance. This is somewhat in contrast to prior work showing a relationship between greater cognitive inhibition, as measured by a Stroop interference task, and less intensity at pain threshold and tolerance (Bjekic et al., 2018; Oosterman et al., 2016). However, those studies did not examine cognitive inhibition in a broader meditational model that included other
psychological factors, such as pain catastrophizing. Prior work has previously shown that higher levels of pain catastrophizing and reduced cognitive inhibition interact to predict increased clinical migraine pain (cite), but a theoretical modulatory or meditational role of cognitive inhibition was not considered. Thus, at least when considering a mediating role for pain catastrophizing, cognitive inhibition may only play an important role when predicting factors surrounding the time at which one first detects noxious stimuli.

Finding a meditational role for cognitive inhibition at pain threshold versus tolerance suggests potentially different mechanisms underlying the effect of catastrophizing on pain detection. An overarching theme in models of pain catastrophizing is increased hypervigilance, which may then lead to difficulty with regulating or inhibit an automatic response to pain in order to attend to more important life goals (Linton & Shaw, 2011). In the attentional model of pain (Sullivan et al., 2001) catastrophizing results in diverting attention from other stimuli, resulting in increased focus on pain and heightened intensity when it is experienced. Severeijns and others (2004) theorized that pain catastrophizing is associated with the appraisals of threat and helplessness when pain is experienced.

Hypervigilance and increased threat detection at the point of pain threshold is well-suited to a more recent model of pain that relies on the behavioral inhibition and behavioral activation systems (BIS/BAS) theory, as first outlined by Gray (1982). Activation of the behavioral inhibition system can occur upon the detection of pain, and in this manner, catastrophizing is a BIS-related process that influences whether one persists with a task or avoids (Jensen, Edhe and Day, 2016). In this regard, one may appraise BIS cues when they first present themselves (e.g., pain threshold) as more threatening and dangerous (e.g., higher pain rating at threshold). Differences in activation of BIS and BAS systems have also shown asymmetric hemispheric
activations, with increased activity in the left prefrontal cortex associated with greater BAS and increased activity in the right prefrontal cortex in BIS (Harmon-Jones and Allen, 1997; Sutton & Davidson, 1997). Given that the left prefrontal cortex is activated during the stroop task (Chen et al, 2018), it is possible that performance on the Stroop may be a marker for BAS activity the ability to override a response tendency in favor of maintaining goal-driven activity. Indeed, exerting self-control has been shown to increase BAS activity in the behavioral approach system and is associated with increased left prefrontal cortical activity (Crowell et al., 2016). The fact that efforts in overriding a predominant response may eventually deplete (Friese et al., 2013) may explain why we found cognitive inhibition to mediate BIS-related catastrophizing and perceived pain at threshold, but not with perceived pain at tolerance.

Cognitive therapy for chronic pain often targets reframing maladaptive thoughts and behaviors such as catastrophizing and fear avoidance, which may lead to improved outcomes (Ehde, Dillworth & Turner, 2014; Williams, Eccleston, & Morley, 2012). Catastrophizing can be considered a BIS-related cognitive appraisal associated with higher perceived pain intensity (Jensen, Ehde, & Day, 2016; Day, Matthews, Newman, Mattingley, & Jensen, 2019). There is a strong negative relationship between BIS activity and one’s tendency to engage in cognitive reappraisal strategies (Serraro-Ibanez et al., 2018). Thus, one interesting question arising out of this present finding is whether improving cognitive inhibition skills would potentially alter pain sensitivity. Training in cognitive flexibility and task-switching improved performance in a different, Stroop-like interference control task (Karbach & Kray, 2009). Moreover, those receiving training to increase cognitive inhibition showed not only improved inhibitory control of automatic responses in other tasks but also improved abstract reasoning (Maraver, Bajo, & Gomez-Ariza, 2016), a skill that is arguably important in searching for and find new perspectives
that is inherent in cognitive reappraisal. Larger, experimental paradigms would be needed to explore this question further.

There are several limitations to the present study. It is important to consider that this study, which was comprised of healthy individuals without pain, do not necessarily generalize to individuals living with chronic pain. In addition to the type of participants, experimental pain paradigms such as the CPT may not fully replicate the pain experienced in chronic pain populations, which is diverse in terms of pain characteristics. In our study, participants knew pain was temporary and could be stopped at any time, which is quite different from the ongoing pain experienced by those with chronic pain disorders. Future studies should further explore mediating or moderating role of catastrophizing in clinical pain populations, with respect to both characteristic temporal aspects of that pain condition (e.g., breakthrough pain) as well as how these individuals perceive experimental pain.

In conclusion, results from this study reveal that at least among healthy individuals, the effects of catastrophizing on the intensity of pain works through cognitive inhibition when pain is first perceived, but not at tolerance. In this manner, there may be differential mechanisms underlying the effect of catastrophizing on pain outcomes based on how individuals respond to the initial processing of a pain stimulus and whether individuals are able to cognitively inhibit or suppress automatic responses elicited by those initial pain cues. Given the relationship between cognitive inhibition, catastrophizing and prior work investigating neural correlates, performance on inhibition tasks may be a marker for BIS/BAS activity in the context of pain. Larger studies that include individuals with clinical pain disorders are needed to investigate these relationships further.
References


https://www.cognifit.com/science/cognitive-skills/shifting


Deyo RA; Smith DH; Johnson ES; Donovan M; Tillotson CJ; Yang X; Petrik AF; Dobscha SK.


doi:10.1146/annurev-psych-113011-143750


https://www.verywellhealth.com/conditions-most-often-associated-with-chronic-pain-2564563


Am I Man Enough? Black Masculinity in Television

By: Justin Williams

Abstract

The idea of black masculinity has been misconstrued through time in various outlets. Black masculinity in television has a way of portraying masculinity that translates into society and the views of people. These portrayals have shaped people’s thoughts on what black masculinity is and how it is seen. The purpose of this study is to see how masculinity is portrayed on television. The use of a content analysis to breakdown the different areas of masculinity shown in the shows within the sample for this project will help us determine some of the themes that seem to be used in determining what is masculine and what makes a man masculine. The idea is to try to break down the barriers of toxic masculinity and help show a new version of what a black man is and can be.

Introduction

Today the image of a black man is perceived in a way that is either negative or stereotypical. Media has portrayed the role of a black male in society in different ways. The way media is portraying them can either have a negative or positive effect on society due to imagery and talk about not only this topic but also the shows that depict what this specific topic and more in some type of way. Morgan Ellithorpe and Amy Bleakley describe how black adolescents watch more television than non-black adolescents. (Ellithorpe. Morgan. E. and Bleakley. A (2016). Wanting to See People Like Me? Racial and Gender Diversity in Popular Adolescent Television.) Adolescence is a time of identity development, where individuals attempt to solidify what their group membership means and the ways to define themselves within that membership (French et al. 2006).
Black masculinity has been a topic of discussion in most of black television. Whether it is subliminally mentioned or brought up in the show; it is an ongoing discussion in society along with other topics revolving around masculinity. Television today has a way of showing the negative and stereotypical side of black men and families while throwing in a positive lesson and using it to the advantage of the show and cast. The cast and the show have a way to debunk these stereotypes and creating a new, more positive image for the black man and the black family. This has been proven in popular shows like *Blackish* where the family has used current events in episodes and changed the narrative based on what they view it should have been or should have said.

This study seeks to examine masculine portrayals in television dramas and comedies. Specifically, this study examines portrayals in four popular black television shows— *Blackish, Empire, Greenleaf* and *The Fresh Prince of Bel-Air*. The purpose of this research is to show and describe Black masculine portrayals on television and to try to break down the barriers of toxic masculinity in the black community while also contributing to the body of knowledge on framing research and research on the masculine identity.

The rising of toxic masculinity in American society has deemed "less masculine" men inadequate and not up to par. Television is a powerful tool and can be an influence on what people think about the Black male image. In an era where Black men continue to be attacked TV can be a tool for change in the thought and depiction of Black men in society if used properly. Lastly, this can help hold movers and shakers in Hollywood accountable for fictional portrayals of Black masculinity and also hold news practitioners accountable as well.
Literature Review

Defining Black Masculinity and Identity

Societal constructs seemingly mandate masculine traits as heterosexual, tough, emotionally distant, and cold. The idea of black masculinity has to do with what the black community associates with being a man. The concept of masculinity is defined by Matthew Jones to be three overarching categories: perception, expectation, and representation. All three of these categories are intertwined together to create an extended definition of black masculinity (Jones. M., 2016). He goes on to say “this type of masculinity is extremely different from any other race’s definition of masculinity because there is a negative connotation attached to black men. It is impossible to define black masculinity without addressing the stereotypes that are attributed to the portrayals of black men in our society” The idea of black masculinity has been misconstrued in society because of the negative image that comes with it.

Bryant Alexander, in his book “Performing Black Masculinity”, spoke on his personal experiences balancing masculine expectations. He describes his classroom behavior as a student as a man that is believed to be a cultural representation and exotic other. He is seen as the outsider and is considered contrast to media-produced images of other Black men. He goes on to talk about how his professors sometimes seek his opinion on issues regarding race and how he is viewed as the “native informant, lurching about the island and showing Prospero its sweet and secret places, serving to provide data which Prospero can then rule”(Karamcheti 1995, 142). Alexander says that as a teacher he sometimes hears from, what he refers to as, a good-non-traditional-White-woman-student-bigot, “You’re a very nice Black man, a credit to your race” (Alexander, Bryant Keith.2006.).
He goes on to talk about what it is like on his side of the tracks. “Crossing over and crossing under that invisible dividers, the wall-the border that surrounds the white ivory tower from the larger often depressed surrounding cultural community, I sometimes enter perceived as “Bad Man” (Alexander, Bryant Keith. 2006.). I enter as “John Houseman in racial drag.” (Karamcheti 1995, 143) In the eyes of other Black men, he is seen as someone who is trying to be someone that he is not. He is perceived as trying to be White, not because of his appearance but because in a metaphorical sense of linguistic performance and wearing the garments of academic accomplishment. He is a bad Black man because he does not conform to the stereotype of what society has deemed a Black man to be. The things that make him a Good Black man in the eyes of others make him a Bad Black man in the eyes of his own culture.

The idea of being a Good Man but also being a Bad Man translates into the idea of code-switching and how if a man is seen acting or portraying himself in a sense of whiteness, by Black society standards, he is seen as trying to be something he is not. One can be seen in a positive light by one culture but a negative one by his own culture just because of him acting differently. The black societal structure has seemed to have deemed anyone acting too White as someone that is not of the culture and someone that has turned his back on his people.

The idea of being a Good Man but also being a Bad Man translates into the idea of code-switching and how if a man is seen acting or portraying himself in a sense of whiteness, by Black society standards, he is seen as trying to be something he is not. One can be seen in a positive light by one culture but a negative one by his own culture just because of him acting differently.

J.A. Doyle identified five tenets to break down masculinity. He breaks masculinity into: don’t be feminine, be successful, be aggressive, be sexual, and be self-reliant. Even though a man may not fulfill all five tenets at any one time, he must be able to perform any of those tenets
at a moment's notice. A masculine man ought to be able to perform the appropriate tenet of masculinity for any given context. For example, in a physical altercation a man is not required to "be sexual", but he must be able to "be aggressive." After the physical altercation, a man no longer needs to "be aggressive" and needs to perform one of the other four tenets as appropriate to maintain his masculinity (Ingham, S. (2017)).

**Stereotypes**

Black men are ridiculed by stereotypes that hinder them just because of the color of their skin. Black men are perceived in the negative connotation based on what society has constructed to be the norm for them. “Myths and stereotypes serve many culturally important functions. For one, they serve to lessen the cognitive-load of modern man in as much as we must codify and categorize the infinite amount of information on which reality itself is based. Thus, as a function of our socialization, we develop the tendency to classify objects and events; it makes the world a lot simpler!” (Wilkinson, D. Y., & Taylor, R. L., 1982).

This negative connotation of the black male in media and television can be seen as far back as in some of the very first movies; one of those prominent movies being *Birth of a Nation* released in 1915. *Birth of a Nation* was one of the first movies to bring the stereotype of black men being the brutal black buck. "Bucks are always big, baadddd niggers, oversexed and savage, violent and frenzied as they lust for white flesh" (Bogle, D., 2001). This is still seen in some of today's media. While it may not always be a lust for white flesh it can still be viewed in the same sense because Black men are portrayed to be this highly sexual being that is sexually aggressive and on the prowl. "Griffith played on the myth of the Negro's high-powered sexuality, then articulated the great white fear that every black man longs for a white woman" (Bogle, D., 2001).
Black people were seen as the inferior race and when they started to gain power and some traction, it was seen as a threat to what the current American society had deemed as correct. “These depictions of Blackness as docile and manageable reflected the ability to control the Black body and mind, creating the idea that slavery was the best position for Black people. This status of inferiority is echoed in W.E.B. DuBois’ writing of how whites viewed freedom as a way to “spoil” and “ruin” Black people (DuBois, 1903).

Additionally, according to David Pilgram: However, this image of Blackness ended after the American Civil War. During the period of Reconstruction (1865-1877), newly freed Blacks began to obtain social, economic, and political rights with the passage of the 13th, 14th, and 15th Amendments to the Constitution.” “This growth in power challenged White supremacy and created White fear of Black Mobility. Particularly, wealthy Whites were fearful of political power newly freed Black people could acquire via voting, whereas poor Whites saw Black as competition in the labor force.”(Smiley. C. & Fakunle. D., 2016).

The election of President Barack Obama led many to believe that a new time of change was on the way with his slogan “Yes we can”. The idea of racial equality is one of the biggest hopes to come to the forefront of people’s minds when they envisioned a Black president of a country that has a history of Black oppression. “Despite this idea of being post-racial, several cultural critics and scholars point out that this racial equity has not been reached or achieved(Tesler & Sears, 2010; Wise, 2010)” (Smiley. C. & Fakunle. D., 2016).

The Black Man

In an episode of *Luke Cage* after a child was shot and killed, Cage brought up how important Black mentorship is and how integral it is in trying to raise younger generations.
“That’s how you get them on your side. Sweepin’ up hair. Runnin’ errands. Lettin’ ‘em hang out, play video games. Anything is better than what’s waiting for them out there on the street. They want a way out, but they have too much pride to ask for help. Luke Cage replies Everyone has a gun. No one has a father. Pop agrees with him as he says, “Ain’t that the truth.” In this case, it appears that Luke Cage is providing commentary on the importance of Black mentorship to steer young Black men away from the streets (Hemphill. M.J., 2017).


They go on to debunk the idea of black women viewing black men in a negative light and bring forth the positive outlook that they have on black men instead. “Despite prior assumptions that Black women view Black men unfavorably, our findings suggest a more balanced and contextualized assessment” (Abrams. J.A., Maxwell. M. L., Belgrave. F.Z. (2018)). She goes on to say “A theme that emerged across all focus groups was that Black men were both physically and mentally strong. To participants, this strength was evidenced by working hard and providing for their families. Consistent with previous literature, physical strength was associated with being masculine, a traditional gender role of men (Bem,1974). Mental strength was described as being
assertive, powerful, hardworking, firm, and strong-willed” (Abrams. J.A., Maxwell. M. L., Belgrave. F.Z. (2018)). In the next section, she further explains that the women in the study thought, “Black men have challenges connecting and committing to their partners and families; however, these perceptions were couched with descriptions of socio-historical circumstances beyond black men’s control” (Abrams. J.A., Maxwell. M. L., Belgrave. F.Z. (2018)).

The depiction of the Black man by the Black woman can have a major role in how Black men view themselves since Black women are the ones that raise Black men. The Black woman has a strong hand in raising the Black male so the idea of her being one of the points of validation that a Black man has is congruent with the idea of the Black male wanting to please his mother the best way he can.

**Black Men in Families**

The idea of Black masculinity starts at home. What youth see in their surroundings and on television affect what they view as masculine. "Researchers have found differences among how fathers of different races are portrayed. For example, Pehlke et al. (2009) found that comedies with African American and Latino fathers included more parental negotiation and emotional support (positive parenting behaviors) and fewer negative interactions (i.e., immature behaviors) than white fathers. Others have studied the portrayal of Black fathers, using both family sitcoms and reality TV shows. Analyses of *The Cosby Show* and *Sanford and Son* suggest a stark contrast in the portrayals of fathers, likely because of generational differences or class differences (Inniss & Feagin, 1995). (Troilo, J., 2017)

Generational and class differences also have a hand on developing masculine ideology. What one class may view as masculine another may not and so forth. “Watching TV may be considered mindless entertainment, but viewers are presented with important images of how
fathers interact with their children that can influence schemas they hold about fatherhood. If, as cultivation theory suggests, the more time people devote to TV families, the more likely they are to identify with the world created on TV as opposed to reality, then the messages sitcoms are sending to viewers can be considered important agents of influence (Gerbner et al., 1976). (Troilo, J., 2017)

The study “Moms, Dads, and Boys” brings forward proof of Black parents having higher standards for their sons compared to their White counterparts. This can be related to different societal views or even different life experiences. "This study of child socialization patterns provides interesting insights into several dimensions of Black family roles and relationships. We find, for example, little evidence to support prevalent pathological concepts of Black males vis-à-vis their families. The Black fathers here are shown to be highly involved in the rearing of their sons. Moreover, the Black parents studied here are producing well-adjusted, positively motivated sons. As one reviews the findings from this study and compares Black fathers with their spouses and with their white counterparts or Black sons to white sons, one wonders how Black male family roles could have been so grossly misreported in the past." (Gary, L. E., 1990). This study also helps debunk the idea of the aloof, distant and uncaring father in the Black family. Black fathers, according to the study, tend to be more hands-on and more interested in their sons than initially thought compared to their White counterparts.

**Black Men and Sexuality and Sexual Freedom**

Clothing choice has been a big topic in the debate of masculinity. The debate brings up that to be considered masculine you have to wear a certain type of clothing. In 2008, Thug Slaughter Force, a small rap group from Brooklyn sparked controversy with an online video and song that jabbed at black, male hip-hop artists’ clothes. According to the group, men should not
wear clothes that are tight and revealing because it is seen as feminine or queer. They even go so far to threaten beatings and even death to those who make such fashion choices. (Penny. J., 2012) A year earlier, protegé of grammy award-winning rapper, music mogul, and entrepreneur Jay z, Beanie Sigel created a stir in the media when he criticized the image and clothing of rap veterans Kanye West and Pharrell Williams, suggesting that if either performer were to come to his Philadelphia neighborhood dressed in “silk shirts with buttons, with the chest hairs hanging out”, he would be attacked on the street (Ivey) (Penny. J., 2012).

These incidents bring on the thought that if a man wears clothes that deem him emasculate he is considered feminine or even homosexual. With men bringing forth new style choices this sparks a bigger conversation; we have rappers wearing dresses now and being attacked on social media because of it but still being supported so it contradicts the narrative but brings forth another one, sexuality in the Black community. “Empire demonstrates the struggles of a black gay man trying to survive in the hip-hop genre; however it still fails to fully address the lived experiences of racism, poverty, sexism, and misogyny experienced by a majority of Black America… Much like previous research on black queer television shows (Eguchi et al. 2014; Yep and Elia 2012), the current study demonstrates the Empire’s gay character epitomizes the marginalized minority male’s journey to surmount the systematic subjugations of racism, homophobia, and poverty”(Rodriguez. N.S. (2018)).

While these studies talk about the negative points of sexuality in the Black community, they both bring light to the ongoing hardships that come with being different and going against the social constructs that make up black masculinity. Societal constructs seem to point to the idea of a man being anything but heterosexual less masculine.
Bryant Alexander brings up another pressing situation of differentiation in masculinity in the black community (A "stereotypical" Black brother) "Listen to the way he talks." Faggot. "You don't have a girlfriend?" Faggot. "What do you mean no basketball?" Faggot. "You're a teacher?" Faggot. (Alexander, Bryant Keith. 2006.) If a Black man is seen doing something as less masculine, he is deemed to be a Faggot or homosexual. This sort of toxic masculinity has made it difficult for some Black men to feel comfortable and safe in their skin. They feel that they have something to make up for because of the way that society views them and that they are not Man Enough. Black masculinity is shown to be, by society’s standards, anything that is dealing with sports such as football, baseball, and basketball, hands-on jobs such as mechanics or construction, and being heterosexual.

**Black Media**

Black media can be seen as an outlet for the Black community to try to get a point across or to just get away from the harshness that comes from society. This can also be said for black men. The invention of different media outlets has brought about different mediums of expression for the black male figure as well. “Since its inception in 1827, the Black press has sought to be an advocate, educator, counselor entertainer, and informational bulletin board for the Black community (Cornish & Russworm, 1827). Today’s Black press has expanded from just newspapers to include radio, magazines, television shows, literature movies, websites, and social media. However, its mission as a whole remains the same. (Sullivan. J.M., Platenburg. G.N. (2017)) the Black press is a voice for the voiceless.”(Sullivan. J.M., Platenburg. G.N. (2017))

This also brings up the point of young adolescents and where they get what they view as masculine. Media and the different outlets associated bring different outlooks in most situations. A person may see one view on television and a completely different view on social media.
“Racial diversity differences between the shows popular with Black and non-Black adolescents became apparent when taking into account the expanded media diet of Black adolescents” (Ellithorpe, Morgan, E. and Bleakley, A (2016)). Adolescence is a time of learning about oneself and what a child watches on television contributes to what they view as right and wrong in reality.

Social constructs in society have a major role in what is viewed as masculine or not. “Social construction is how society, usually the hegemonic power structure, labels individuals and in doing so, creates a hierarchy of social groups. The social class and social standing of an individual is based on the identities they align themselves with and how they are perceived by others.

These constructs are created by an individual’s interpretation and their perceived knowledge of social groups. For these concepts to exist and their labels to be maintained, they must be reaffirmed, media is influential in creating this pattern.” (Stamps, D (2017)) These constructs are the labels that dominant power in society says are norms and if a person is not in these norms they are considered abnormal. This goes along with masculinity because the heterosexual image is what is considered to be masculine and if you are outside of that image you are deemed emasculate and different from what is accepted.

Framing Theory

For the purpose of this study; Framing Theory will be used in order to assist with finding emerging themes in the television shows used. The concept of framing consistently offers a way to describe the power of a communicating text. Entman (1993) has called framing “a scattered conceptualization that influences thinking” (Entman, R., E.,(1993) p. 51) Based on Entman’s (1993) framing theory, this paper will proceed to bring forth assumptions from the male
characters picked in this analysis create a primary social frame that helps their audience interpret the masculine portrayals depicted in these television shows. Fairhurst & Sarr (1996) introduced several framing techniques including metaphors, stories, tradition, jargon, artifact, contrast, and spin. In the case of the shows and characters analyzed the primary focus was to reveal how masculinity is portrayed in these different television shows between drama and comedy series.

The primary framing technique is to frame verbal and nonverbal interactions between the picked character and the different situations they are put in. These frames will help to answer the guiding research questions of: How do the characters on the selected shows exhibit traditional masculine characteristics of the Masculine Behavior Scale?, How do the characters on the selected shows act towards sexual minorities involved in the show?, How are the characters on the selected shows expressing themselves through their physical appearances?, and How are the personal characteristics of the characters on the selected shows shown/viewed? What are their roles in the show?

Entman defines framing as the process of culling a few elements of perceived reality and assembling a narrative that highlights connections among them to promote a particular interpretation. Fully developed frames typically perform four functions: problem definition, causal analysis, moral judgment, and remedy promotion. (Entman, 1993, 2004) Framing works to shape and alter the audience member’s interpretation and preferences through priming. That is, frames introduce or raise the salience or apparent importance of certain ideas, activating schemas that encourage target audiences to think, feel, and decide in a particular way (see, e.g., Gross & D’Ambrosio, 2004; Iyengar & Simon, 1993; Kim, Scheufele, & Shanahan, 2002; Price, Tewksbury, & Powers, 1997).
The guiding research questions for this study were:

- How are the personal characteristics of the characters on the selected shows shown/viewed?

What are their roles in the show?

- How do the characters on the selected shows act towards sexual minorities involved in the show?

- How are the characters on the selected shows expressing themselves through their physical appearances?

These questions helped guide the focus of this research and were able to be answered through the methodology implemented for this study.

**Methodology**

The purpose of this study was to identify television shows and characters to analyze the masculinity depicted in different situations. Using a random episode generator, television episodes were selected and compiled into a sample list of twenty-five episodes across four different major black series. Two of these series are drama series and two are comedies. This was to try to see how masculinity is depicted in different scenarios across different genres. These are shows that are predominantly black cast and revolve around black issues and lifestyles. These shows were analyzed for the research questions listed above by looking at personal characteristics and using Doyle’s five tenets of masculinity.

Each episode was watched and coded separately for these things. After watching and coding each of these episodes the code sheets were compiled into charts and graphs to show the correlation and relationship of Black masculinity in the television shows. The television shows picked for this study are *Greenleaf, Empire, Blackish, and The Fresh Prince of Bel-Air*. The
The subject of each show is the Black male lead which would be: Bishop Greenleaf, Lucious Lyon, Andre Johnson, and Will Smith respectively.

For the purpose of this study, a content analysis was used as the primary methodology. A qualitative content analysis is a powerful method for analyzing large amounts of qualitative data. By coding each episode for certain aspects of masculinity the goal is to try to find out how Black masculinity is portrayed in these television shows. A content analysis is the best approach for this study because it is deeply rooted in the field of mass communications and based on the basic means of the communications model. Content analysis is used in a range of fields; anthropology, political science, and management are a few. (White, M.D. & Marsh. E.E (2006).)

One definition of a content analysis would be “a research technique for making replicable and valid inferences from texts (or other meaningful matter) to the contexts of their use” (Krippendorff, 2004.).

The shows were analyzed using this content analysis and each code was coded using a range of one to five. This was done for each code and using the information found this became the data of the study. The data was used to depict the type of masculinity used in each show and how it was portrayed. After the shows were coded and analyzed the data was taken and put into a spreadsheet to show the overall differences in each show among the different codes. From here the data was used to put into words the differences between both comedy and drama series. The data also showed the differences among time periods and age ranges. This was used to put into perspective the need for more or less masculine portrayals depending on the genre, depictions, age group, and issue. The masculine portrayals were all shown to be different based on not only the genre but also the show. The different age groups in these shows also led to different ideas of masculine portrayals.
The dramas of this study are *Greenleaf* and *Empire.* *Greenleaf* is a drama about the Greenleaf family and their sprawling Memphis megachurch, where scandalous secrets and lies are as numerous as the faithful. Born of the church, the Greenleaf family love and care for each other, but beneath the surface lies a den of iniquity—greed, adultery, sibling rivalry, and conflicting values—that threatens to tear apart the very core of their faith that holds them together (“Greenleaf.” *Oprah.com*). *Empire* is a powerful drama about a family dynasty set within the glamorous and sometimes dangerous world of hip-hop music, the show revolves around the Lyons and their media company, Empire Entertainment (Empire: *FOX*). The first family of music has its struggles just like everyday people. The drama takes you through the ups and downs of the upper-class Lyon family who have humble beginnings but through hard work and determination have made it to the top.

The comedies of this study are *Blackish* and *The Fresh Prince of Bel-Air.* *Blackish* is a comedy about an upper-middle-class family going through their day to day lives. Like any parents, Andre "Dre" (Anthony Anderson) and Rainbow (Tracee Ellis Ross) Johnson wants to give their children the best. But their offspring's childhood is turning out to be much different than theirs. They now realize at least two things: there is a price to pay for giving their children more than what they ever had, and these loving parents are totally unprepared for the fallout (abc.com/shows/blackish).

*The Fresh Prince of Bel-Air* is a comedy about a young man sent to stay in California by his mother after a fight in his Philadelphia hometown. His mother was afraid for his life so she sent him to stay with his upper-class uncle and aunt in their Bel-Air home. Here Will has to become accustomed to his newfound lifestyle and learns valuable lessons from his uncle Phil.
All of these shows have Black cast and are about the Black lifestyle. (The Fresh Prince of Bel-Air.” IMDb.com).

**Findings**

**Personal Characteristics**

The codes looked for in the personal characteristics section of this project were: household roles, jobs, sexual orientation, and social class.

*The Fresh Prince of Bel-air* was the first show to be analyzed in this study. Will Smith was the character of the focus for this show. Over the episodes analyzed Will’s household role of cousin and nephew, heterosexuality, and upper-class social status did not change. These three codes stayed constant across all five episodes analyzed.

*Empire* was the second show to be analyzed in this study where Luscious was the character of focus. Over the episodes analyzed his role as a father, heterosexuality, and upper-class social status. Theses codes stayed consistent across all five episodes.

*Greenleaf* was the third show to be analyzed in this study. The character of the focus for this show was Bishop Greenleaf. Bishop’s household role was that of a father and husband. He was a man of heterosexuality and upper social class status. These codes were constant in all five episodes.

*Blackish* is the last show analyzed in this study where Andre was the focus of the show. Andre’s household role as a father, job as an advertising executive, heterosexuality, and upper-middle-class social status does not change across the episodes analyzed. He stays within these same frameworks in the five episodes analyzed. These are the only frames and codes that can be seen that do not change across episodes.
Femininity

The codes looked for under levels of femininity were: clothing, children, chores, and appearance. These codes could have been seen in all episodes analyzed or in one or two particular episodes. They were coded in each episode so there were variations across episodes and shows.

For the *Fresh Prince of Bel-Air* in all five episodes, Will was seen wearing what can clothing that can be viewed as gender-neutral such as jeans, a t-shirt or a sweatshirt. In one episode Will was seen wearing a pair of loose-fitting jeans, a t-shirt, and sneakers. With only two variations in this code, Will was seen in two episodes wearing clothing that would be seen as traditional male clothing such as a button-down shirt and another episode wearing clothing that can be viewed as frilly and tight. This was seen in the episode “six degrees of graduation” where Will had to wear tights and a sunflower costume to perform at graduation. Will was coded for having no children in all of the episodes analyzed. Will was also never seen doing any chores in the episodes analyzed but had a butler to do them for him. Will was not seen caring for or dismissing his appearance in any of the episodes analyzed.

For the show *Empire*, Luscious is seen wearing clothing that can be deemed as traditional male attire. He wears suits almost everywhere he goes. His children are grown so he is not seen taking care of them or even showing much love towards them. He is extremely hostile towards Jamal at the beginning of the series due to him coming out as gay. He has a staff on hand doing chores so he or his family are never seen doing any chores in or around the house. When coding for appearance it was determined that Luscious seems to not really ignore or pay attention to his appearance.

Bishop Greenleaf’s level of femininity seemed to stay constant over the course of the five episodes analyzed. His clothing choice was the traditional male clothing choices. He usually
wore a suit and tie every time he was shown on the show. His children are all grown so he does not how to take care of them; they can take care of themselves. There are scenes where he nurtures his children and comforts them, one example would be the scene where he goes to charity and hugs and talks to her about her recent divorce from her husband. He may come off as distant but loving and stern to those that he is around. He is upper-class so he does not do any chores on his own. He has a housing staff that is constantly on call to do what is needed. When it comes to his appearance, Bishop is rarely seen spending time on or ignoring it. He is not seen doing much grooming in the episodes analyzed.

In *Blackish* Andre’s clothing choices are very gender-neutral by the terms of today’s society. He is mainly seen in a button-down shirt, jeans, and sneakers. This is something that both men and women wear in today’s society so it was coded as gender-neutral. When it comes down to his children Andre is mostly seen interacting with the children but they are not shown in a situation where they need taking care of. It is shown that he is harder on Junior being that he is a teenage male than any of his other children. There is some deviation from this where Andre is seen bathing the twins in one scene. As for chores Dre is never actually seen doing any chores. They seem to be done by his wife or his children. There were two episodes where they were being done by a nanny. When it comes to appearance Dre is mostly seen as not caring for or dismissing his appearance. There was one scene in the episode “sex, lies, vasectomy” where he is seen picking carefully picking out his outfits for the week.

**Success**

For levels of success, there were two codes looked at for this project. They were job authority and finances. These codes pertain to what level of authority the character has in his job and what his money is spent on, if it is being seen being spent, and it is spent.
In *The Fresh Prince of Bel-Air* Will was only coded to have had a job in two episodes. Within those two episodes, he was pretty much left to his own devices when it came to working. He was never seen taking or giving any orders or seen in a scene with someone that has authority over him. As for finances Will was taken care of by his aunt and uncle and living with them. There were no situations where he made any major purchases or spent any money. There was the episode “Will gets a job” where he got a job so he could pay for the things he wanted to get for prom. He did this so he would not have to ask for his uncle for money even though he would have given it to him.

In *Empire*, Luscious is seen constantly giving orders at work and being the demanding boss. He leaves little room for anyone else to say anything. At work, he is seen in multiple board meetings being the stern CEO of the company his family started. As for finances, he is seen with fancy cars in the driveway but never actually driving but being chauffeured everywhere. He is also always seen in some sort of fancy suit or outfit and a big mansion to live in.

In *Greenleaf* Bishop is mostly seen as not giving or taking orders at work. There are two episodes out of the five where it is coded as giving orders while working. One is a scene where Bishop is taking charge and overseeing one of the events that he was hosting at the church. As for finances out of all of the episodes analyzed Bishop was not seen making any major purchases but he lived in a big mansion, drove a fancy car, and wore expensive suits. While there were at least two episodes where it was said that they were dealing with financial hardships due to some business dealings that Bishop had done that is still seen going about life as usual with nothing changing.

In *Blackish* Dre is a man that has a job as an advertising executive. When at work Dre and his colleagues are mostly seen discussing outside related topics. In four out of five episodes
he is not seen giving or taking orders but in the episode “Man at Work” he has been given the
order to fire his co-worker and friend Charlie. In this episode, he is seen taking orders but is also
still being a leader at work. Where finances come in Dre is not really seen making any purchases
but he and his family are seen living in a big house, wearing expensive clothes, and driving
expensive cars.

Physical aggression

For this section, the codes looked at were for verbal, physical, and sexual aggression in the
characters. These were to try to determine the levels of aggression each character possessed.
Sexual aggression was only coded if there was explicit content.

Will was, for all episodes, mostly neither verbally aggressive or submissive. There were a
couple of scenes where he used an aggressive tone or yelled such as the scene where his father walks
out and he yells “to hell with him”! Will also for the majority of the episodes was not in any
physical altercation that showed physical aggressiveness or submissive. In the famous episode
where his father, Lou, walks out on him again, he has aggressive movements but there is no
actual physical altercation. As for sexual aggression, there were no explicit scenes to code for
this.

Luscious tends to be neither submissive nor aggressive in the episodes analyzed. Though
there are scenes, where he gets riled up and has aggressive moments he is mostly coded as being
neither verbally submissive or aggressive. The same can be said for physical aggression. Though
he also has moments where he gets physically aggressive he is mostly seeing being laid back. If
he needs something done, he has others doing the dirty work for him. As for sexual aggression,
there was only one episode where he is seen in a sexual encounter. In this encounter, he is having
sex with his rehabilitation nurse but is thinking that she is Cookie. In this scene, he is seen taking the lead and being in control.

Bishop tended to be neither verbally aggressive or submissive. There was one episode out of the five where he became aggressive due to his home being raided by the IRS. He was also not seen being physically aggressive or submissive until this precise moment. As for sexual aggressiveness, there was no sexual content to code in any of the five episodes.

Dre in *Blackish*, in four out of the five episodes, was shown to not be aggressive or submissive. In the episode “sex, lies, vasectomy, he was shown to be slightly aggressive in an argument with his wife and he raised his voice in an aggressive manner. While this was the case Dre still showed neither aggressive nor submissive behavior for the rest of the episode. Dre was also not shown in any physical altercation. He was seen to have not been aggressive nor submissive physically. There was no sexually explicit content to code in the episodes for this project.

**Sexual**

In this section, the character of focus was coded for talking about sex and having sex. In three out of five episodes coded Will never mentioned the topic of sex. He was not seen in any scenes where he was touching, kissing, making out, having sex, or having sexual dreams with anyone. In the other two episodes, Will was shown kissing or making out with a girl. As for having sex, Will did show the codes for having sex as much as possible. In two out of five episodes he was not shown to have been in a sexual manner. In two out of five episodes he was shown within scenes to have a long kiss or lust in his expression and in one episode he was shown briefly with the connotation of sex with brief kissing.
Luscious is not seen actually talking or mentioning sex much in the episodes analyzed or in any sexual manner besides the one scene where he is having sex with his nurse. Bishop, in four out of the five episodes, was not shown mentioning sex. The one episode with connotations of sex would be the very first episode of the series. Bishop is holding and comforting Lady Mae after the funeral services of their daughter. He is seen kissing, hugging, and holding her in several scenes in the episode. This coincides with him having sex as much as possible. Though this is also the same episode where he is seen kissing his wife it is the only episode analyzed where he is seen in a sexual manner.

Dre, in two out of five episodes, was shown to briefly talk about sex. In one instance where he was shown kissing and hugging his wife and talking about a baby. The remaining three episodes he was not shown to have mentioned sex in any kind of way. When coding for Dre having sex it was found that he did not have any sexual manners shown in two of the five episodes and for the remaining three he was shown in some sort of brief connotation of sex with his wife.

**Self-reliance**

In this section, the characters were coded to see if they were dependent or independent. Since Will is still a teenager and is still being taken care of by his family he is shown as dependent on the show with some scenes showing him as an independent. One of these scenes is where Will gets a job so he can purchase the things he wants for prom without having to ask his uncle for the money for it. He does not tell his family where he is going but works and tries to make the money on his own.

As for self-reliance, there was only one episode where Luscious coded as being dependent but even at the end of that episode he was back to himself. Luscious seemed to have
been determined to do things on his own. In *Greenleaf* Bishop is seen to be mostly independent. Out of the five episodes analyzed he seems to be able to do things on his own without the assistance of others. Dre is seen as independent in all of the episodes coded except for one where he is shown as dependent when he is trying to get his family to celebrate “Daddy’s Day”, a holiday he has come up with to replace Father’s Day. Dre is shown to be able to provide and do for himself without the assistance of others.

**Discussion**

Some of the findings for this study were very interesting. One of the things that stood out was the fact that none of the men in this study did any chores. While in *The Fresh Prince of Bel-Air* the butler was a black man, none of the other black men showed signs of considering doing the chores. They seem to rely on others to do such things for them. This can be viewed as the old style of the man being the breadwinner and not needing to do anything to take care of the home since he is the one that provides for it.

Another interesting finding was the dress for the different genres in this study. While the men in the comedies tended to dress more lax and wear more gender-neutral clothing, the men in the dramas tended to wear more suits and typical clothing for a male. This was interesting due to the fact that the men in the dramas also have more high-profile lives and jobs. They made it seem that they had to dress a certain way to keep up appearances while the men in the comedies dressed as if they had a different outlook on life. Dre was an executive but dressed more along the lines of an adult version of Will who was a teenager and still in school.

Many of these findings can bleed into what is viewed in society as masculine due to the fact that society is influenced by what is seen in the media. It appears that the societal constructs
of masculinity are ever circling between society, television, and other media sources. What is deemed by the majority of society seems to be shown in these shows in different ways.

While these tenets of masculinity do not all have to show up at the same exact time for a man to be deemed masculine; he does have to show the correct tenet in the appropriate time to be deemed so. He can not show low levels of aggression while in a physical altercation and still be seen as a masculine male. This also goes for the other tenets as well. To be seen as masculine a man must show these tenets in the correct situations.

The masculinity in these shows ranges from being the distant father and the fun-loving teenager. In each show, there is a man of different social status, age, and wealth. Andre and Lucious appear to be the closest in age but are in different social classes. These two characters being in the same age range proves that masculinity can vary by social environment and background. Lucious is more detached to not only his children but the women in his life also. Andre even though he may not appear as completely hands-on is loving to his children and wife.

Will the youngest character for this analysis was carefree and laidback compared to the rest of the characters, which can be seen as him still being a younger character. He played and was more on the goofy and fun side whereas Bishop, who was the oldest of this study was more calm, cool, and collected. Will also was the only character to not have any kids in this study. This can help prove that you do not need children to be masculine or that you do not need to have to at an early age to be perceived as a man.

The characters all support the idea of being masculine in different ways. Whereas Will and Andre were the goofy and fun ones Luscious and Bishop Greenleaf was the more reserved and serious characters. Though this also has to do with Will and Andre being a part of the comedy series of this study. This shows that the masculinity among dramas and comedies is
shown differently depending on the role of the character and what genre he is in. The two drama characters were less likely to have fun or be super caring and loving towards there significant other or children while the characters from the comedies tended to be on the goofy and fun-loving side. Even though Andre was an executive he still made out time to have fun. This may also have to do with social class since both of the dramas dealt with families that were in the upper-class while the two comedies were about more upper-middle class families.

This point also brings in the fact that there are not many television shows showing lower-class/working-class black families where the father/father figure is always present; so for the purposes of this study the black male lead in popular black television shows were used; regardless of having the role of father or father figure. Will is the outlier in this study for being the youngest, only man without kids, and being an older show that is no longer on the air.

Bishop Greenleaf being the oldest in this study is also an outlier due to the fact that he may have a different outlook on things due to both his age and his profession. He is the only character that is in a show that involves religion in this study. Age and religion can and may lead Bishop to different ways of thinking than the other characters in this study. Bishop and Luscious are alike in the fact that they both have grown children and have their children working in the family business.

This project revealed that black men in comedies are usually shown to be carefree and more approachable than those in drama series where they may be seen as mean and distant. Comparing Andre and Luscious, since they are the closest in age, would show that two men in the same age range can have different outlooks on what is masculine to them and the way they perceive and personify it. The idea of masculinity on television is relative to what genre the show is and how it is personified. This bleeds into society by association due to the fact that people
watching feel that these images they are shown are what is deemed by the world to be masculine and the correct way a man should act. That if you are outside of what is shown you are not showing the correct attributes of a man. It was brought up that a man does not have to show all of the tenets of masculinity at the same time to be deemed masculine but what tenets are shown in different situations that do. (Ingham, S. (2017))

This project is one that is being studied due to the fact that today’s society has no idea of what is masculine and what is acceptable. The idea of masculinity in today’s society has turned toxic because of the fact that it isolates those that feel that they may not fit into the norms that been shown by the constructs shown in not only television but also media in general. This is also a problem due to the fact that not only are women picking up on this but also other cultures as well. The black masculine identity is at war within itself and other identities trying to figure out what exactly is a masculine portrayal of a black male.

These characters are portrayed in these ways because of the constructs that society has deemed to be okay. It is a never ending cycle that is constantly going on where one influences the other and society influences the media just for the media to influence society all over again. The power is a way to reduce the toxic masculinity that is brought on by television. This can be a helpful tool if used to show masculine positivity in others no matter what society is saying.
Conclusion

This study was done to shed light on the toxic masculinity in American society. Media, specifically television is just one way to broadcast what the social constructs of society have deemed as masculine. The characters in this study have shown that masculinity is more than just what is shown on the surface. A masculine portrayal does not have to continuously show every aspect of masculinity to be deemed masculine.

Masculinity, in the eyes of society, is not definite and is continuously changing. The stop of toxic masculinity comes with the rise of awareness and understanding that to be deemed masculine one does not have to conform to what society says is such. A person can be different from the social constructs of masculinity but still be masculine by their own standards. A person does not have to go along with the norms of the surrounding culture and environment.

While this study is limited by the small sample size and amount of shows analyzed it can be expanded on in the future by looking at a larger sample of episodes from these shows or others in similar likeness. Picking only one character in each show to analyze and more than one show could also have limited this project by not allowing a definite amount of data to show from one particular show. Character development is also a factor in this study where the characters may change ideology over the course of the show and have a different outlook when it comes to certain topics.

This study is meant to build on the topic of toxic masculinity and bring light to the much needed topic of stereotypes. The stereotype of what a man is suppose to be like has made many men feel left out in society due to the societal constructs that are places upon them. They have become what could be seen as second class citizens due to the way they are seen just because they are different and do not act or present themselves the way society has said they should.
Masculinity is a societal construct built upon based off of what people see and how they portray themselves. As stated earlier this is seen in a continuous cycle of television bleeding into society and society bleeding into what is shown on television and other media outlets. With the help of this study, hopefully, the start of a diminishing pattern will occur with the new insight of what is happening within the social structure of the black community.
Appendix A- Code Sheet [1]

Unit of analysis- TV Episodes

Show

Season

Episode

RQ 1

(Personal Characteristics)

______________ Household Role

______________ Jobs

______________ Sexual Orientation

______________ Social Class

Doyle’s Five Tenents of Masculinity

______________ Femininity

______________ Clothing

______________ Children

______________ Chores

______________ Appearance

______________ Success
Job Authority

Finances

Aggression

Verbal

Physical

Sexual

Sexual

Talk About Sex

Having Sex

Self-Reliance

Dependent

Independent
Appendix B - Code Book:

Show

1 = The Fresh Prince of Bel-Air
2 = Empire
3 = Greenleaf
4 = Black-ish

Season

1 = Season 1
2 = Season 2
3 = Season 3
4 = Season 4
5 = Season 5
6 = Season 6

RQ1

Household Role

1 = Father
2 = Son
3= Nephew
4= Cousin

Job
1= Student
2= CEO
3= Advertising Executive
4= Pastor

Sexual Orientation
1= Heterosexual
2= Bisexual
3= Homosexual
4= Asexual
5= Queer
6= No label

Social Class
1= Lower Class
2= Middle Class
3= Upper Class

1. Femininity

A. Wearing Feminine Clothing-Wearing Masculine Clothing
(1) Wearing frilly clothes, wearing short shorts, wearing a dress or skirt, wearing tight clothing showing off midriff, wearing tights/leggings, wearing flip flops: in general: emphasizing thighs and stomachs-

(2) Wearing one item that is feminine (e.g. bra) but the rest of the outfit is masculine (e.g. work boots)

(3) Wearing jeans, a t-shirt, a sweatshirt; gender neutral clothing

(4) Wearing clothing traditionally identified as male, including a tie, button-down shirt, suit, loose dress pants

(5) Wearing clothing such as rugged jeans, work gloves, work boots, sports gear, and loose-fitting clothing. The clothing will be coded taking into account the context of the commercial

(6) N/A

B. Caring for Children- Not Caring for Children

(1) Nurturing children, feeding children, clothing children, cleaning up after children, taking children to events, playing with children

(2) Two or more caretakers where the man takes part in caring, but is not the primary caretaker

(3) The male does not actively care for their child nor does he actively ignore his child (example: kid and dad in scene together but the kid doesn’t need caretaking)
(4) Male mostly ignores the child or begrudgingly takes care of the child when prompted by
the child or by another caretaker/adult

(5) Overtly ignoring children, letting other(s) take care of the children, dressing up
children in weird/unorthodox clothing

(6) N/A

C. Doing Household Chores- Not Doing Household Chores

(1) Cleaning, cooking (not grilling), doing laundry, being told to do household chores

(2) Grudgingly does household chores at the request of another (wife telling man to
vacuum)

(3) Neither doing chores nor actively ignoring chores (example, chores are being done by
children but neither parent is needed/requested to do chores)

(4) Doing chores poorly and/or trying to ignore chores while focusing on other tasks

(5) Overtly ignoring spills, dirty dishes, or laundry; making female do chores, not cooking
(unless grilling)

(6) N/A

D. Overtly Caring about Appearance-Overtly Not Caring about Appearance

(1) Spending time fixing hair, grooming, take a bath/extensive shower.
(2) Briefly fixes hair or quickly splashes water on face; not much time is spent on appearance

(3) Neither spending time on appearance or overtly ignoring appearance

(4) Ignoring mild need for grooming. Noticeably but not overtly messy, unkempt, frazzled hair, slightly disheveled appearance

(5) Overtly ignoring being dirty, not bathing, messy hair

(6) N/A

II. Success

E. Job Authority (must be in a work situation)

(1) Taking orders at work, working in groups where they’re not in charge

(2) Mostly following at work or taking orders, but some giving of orders/being dominant

(3) Neither taking orders nor giving orders

(4) Mostly leading at work or giving orders, but some taking of orders/being subordinate

(5) Giving orders at work, overseeing projects

(6) N/A

F. Being Poor-Being Rich (Finances)

(1) Struggling to eat/work, sleeping in streets, asking for financial help
(2) Able to make purchases but need financial assistance

(3) Making no purchases or minor purchases, such as basic groceries

(4) Wearing a suit, actively planning to make a major purchase, does not need financial assistance

(5) Wearing expensive clothes, driving expensive cars, owning a large house, going out to expensive places, buying a new car, wearing a tuxedo

(6) N/A

III. Aggression (Character is explicitly in a situation to be either submissive or aggressive. If the character is not in that situation, then they are coded as N/A).

G. Verbally Submissive- Verbally Aggressive (Does not have to be an interaction between characters)

(1) Being quiet, shy, reserved, when being yelled at become quiet; perceived threat

(2) Being mostly quiet, shy reserved when being yelled at but is slightly aggressive toward the original aggressor

(3) Neither aggressive nor submissive

(4) Mostly using an aggressive tone, yelling/screaming, using derogatory language but an instance of being submissive (e.g. other person yells and they back down)
(5) Using derogatory language, yelling/screaming, using an aggressive tone

(6) N/A

H. Physically Submissive- Physically Aggressive

(1) Shying away from aggressor, being scared/frightened, losing in a fight, perceived threat

(2) Not backing down right away; aggressive in return to begin with, but gives in eventually; loses, but not right away/draws in a fight

(3) No action is taken/no altercation/no aggressive actions

(4) Aggressive movements by a character when by themselves/no altercation; A fight where the winner isn’t perfectly clear; entering physical space of another

(5) Standing over other person(s), intimidating other person(s), hitting other person(s)

(6) N/A

I. Sexually Submissive- Sexually Aggressive (Only code explicit sexual context)

(1) Being submissive in a romantic or sexual situation

(2) Being mostly submissive; slight aggression but mostly submissive (fights back for a second but becomes submissive after all)

(3) Neither submissive nor aggressive

(4) Mostly aggressive; perhaps slightly submissive but otherwise aggressive
(5) Being the aggressor in a romantic situation, being in charge in a sexual situation

IV. Sexual

J. Talk about sex

(1) Mention sex at least once, including kissing, touching for arousal, making out, having sex, sexual dream

(2) N/A (Never mentions sex/sexual situations, including kissing, touching for arousal, making out, having sex, sexual dream)

K. Have sex as much as possible (kissing, making out, touching with intent to arouse [partner’s reaction is important])

(1) Shown briefly with the connotation of sex (brief kiss; connotation of sexual situation without explicit mention or depiction)

(2) Shown with long kissing or lust in expression

(3) Shown in explicit sexual situations without being the dominant focus of the commercial

(4) Depicted in sexual encounters for the entirety of the commercial, shown with multiple sex partners

(5) N/A (Never shown in a sexual manner, shown with zero sex partners)

V. Self-Reliance
L. Dependent-Independent (coded as independent unless needing something to help one be completely independent [medicinal aid, children in parent/caretaker situation, financial assistance, physical assistance, psychological assistance, emotional assistance, mental/cognitive assistance])

(1) Dependent

(2) Independent
References


Black-ish https://abc.go.com/shows/blackish/about-the-show

Black Men on Race, Gender, and Sexuality


    https://digitalcommons.kennesaw.edu/cgi/viewcontent.cgi?referer=https://www.google.com/&httpsredir=1&article=1020&context=mast_etd


Hoboken, N.J.: John Wiley & Sons


Masculinity: A Depiction of White Manhood vs. Black Manhood

http://www.wstudies.pitt.edu/blogs/ueo1/masculinity-depiction-white-manhood-vs-black-manhood


Mahwah, NJ, USA: Lawrence Erlbaum.

Penny, J. (2012) “We Don’t Wear Tight Clothes” Gay Panic and Queer Style in Contemporary Hip-Hop


http://www.midss.org/content/masculine-behavior-scale-mbs


Toms, Coons, Mulattoes, Mammites, and Bucks: An Interpretive History of Blacks in American Films, Fourth Edition by Donald Bogle


The Secret Aesthetic of the “Dismal Swamp”: A Case Study of University of Montevallo Ebenezer Swamp Ecological Preserve
By: Tristan Young

Abstract
This initial study examines how to use microbes, deriving from the University of Montevallo Ebenezer Swamp Ecological Preserve, to create a body of agar art that reimagines a vital ecosystem that depends on human protection. Swamps bear a negative connotation symbolizing a dismal wasteland, devoid of value. Bacteria, mold, and fungi also bear a negative association of their own being associated with disease and uncleanliness. These symbols may be innately feared due to a biophobic response. Combining these two dismal symbols through agar art, along with ecological information, may provide an aesthetic experience to convert the viewer’s perspective. A later study could examine how viewers respond and how effective an ecologically informed conversation develops through the catalyst of art. The microbial art of Sonja Bäumel was referenced for inspiration. Microbes were cultivated by various means in petri dishes from soil, air, and vegetation samples. The samples were preserved in resin. Additional layers of ink and resin added imagery of the swamp and embellishments for compositional development. The creations were documented photographically on a light table. Incorporating resin into the petri dishes proved to be effective at preserving the microbial cultures beneath and allowing a foundation for artistic media to be applied. (Keywords: agar art, biophobia, Ebenezer Swamp Ecological Preserve, microbes, resin.)

Introduction
This study seeks to create a body of art, through biological techniques, to unify two odious symbols of nature into an alluring aesthetic design— the swamp and microbes. By first
focusing on the development of a multidisciplinary work of art, this study is the first phase of an effort to potentially act as an environmental educational tool for the public, with hopes to be studied further for community response to the artwork and its effectiveness in its ability to educate through a gallery survey. Scientific language is restrictive in audience; however, art is increasingly growing in popularity to translate science to the public (Lesen, Rogan, and Blum 2016). The pairing of art and science has the potential to communicate the many layers of the swamp’s history, ecological benefits, its need for protection, and reveal hidden microbial life to the viewer through the mediator of art. The initial phase of the Ebenezer Swamp Microbial Art Project sought to answer the following research questions:

RQ1: What is an effective process to preserve growth in petri dishes for artistic use and potential display in a gallery setting?

RQ2: How can defined imagery be implemented into petri dish art?

The project utilized microbial cultures deriving from the local University of Montevallo Ebenezer Swamp Ecological Preserve and explored achieving a desired art technique with the aid of living media in petri dishes. Microbial growth was chosen to be incorporated into the art due to its fast growth rate and accessibility. The microbial artwork of Sonja Bäumel was referenced for artistic inspiration and better understanding of the public response towards the use of microbe infused art. The artwork for this project was created in 8.5 cm diameter plastic petri dishes acquired through Carolina Biological Supply Company. The produced art began as microbial samples collected from the swamp, preserved in clear low fume artist resin, and imagery was later incorporated via acrylic inks. Of the 40 petri dishes used for sampling, seven are referenced through mistakes and successes in the acquisition of the desired technique. The swamp’s unappealing landscape lies in centuries of misunderstanding and mistreatment, and the
search for an artistic process to benefit in swamp ecosystem education could potentially disseminate scientific understanding while simultaneously reframing the dismal perspective of an aesthetic, biodiverse ecosystem in need of human protection.

**Wetlands and Ebenezer Swamp**

Wetlands desperately require education and protection due to the amount of loss that has occurred worldwide as a result of poor ideologies and legislation. Wetlands describe a variety of ecosystems each uniquely defined by their hydrology, vegetation, and soil; however, the term is not specific of wetland type such as a salt marsh or hardwood swamp (Hook 1993; Hudson and Hardig 2015). Earth is estimated to have lost half of all its wetlands since the 1900s (Rolston 2000). The United States has lost over half of its original wetlands, and for perspective this means approximately 60 acres in wetlands have been lost every hour between the 1780s to 1980s (Dahl 1990). Wetlands of the U. S. harbor a history of degradation due to the “drain-and-convert heritage” brought over by European cultures that deemed wetlands as undesirable wastelands in need of improvement (Hook 1993). Valuable landscapes require extrapolation and propagation; landscapes deemed invaluable remove to reclaim. This ideology was deeply instilled into American politics until 1972 during the environmental movement (Hook 1993). The destruction of wetland ecosystems is not always of direct aesthetic displeasure, human population and industrial growth is increasing at an exponential rate that has led to both active and passive negative urbanization effects (Hook 1993). Reclaiming land leads to fragmentation, severing many wetlands from surrounding waters, reducing their ecosystem services, and limiting their ecological functions (Hook 1993; Hudson and Hardig 2015). A wetland being a wasteland is a misnomer, and their loss come at a cost. Freshwater wetlands preform valuable ecological functions for the role they play with nutrients and pollutants (Hook 1993). Wetlands contribute
to groundwater recharge and naturally filter out nutrients from the water (Hudson and Hardig 2015). In addition, wetlands benefit communities by reducing flooding in watersheds that contain them (Hudson and Hardig 2015). Wetlands also are habitats to a vast array of “economic and non-economic species” (Hudson and Hardig 2015). Wetlands benefit communities not only for their ecological benefits but the recreational opportunities they can provide (Hudson and Hardig 2015).

The Ebenezer Swamp Ecological Persevere is the product of the last 10,000 years and currently resides in western Shelby County, Alabama, six miles from the University of Montevallo (ESWIRC 2008; Hudson and Hardig 2015). It is locally known as Ebenezer Swamp and its name derives from the nearby Ebenezer Church established in 1818 (Evans 2019). The University of Montevallo acquired 65-acres of the swamp, once part of the Bolton family’s 360-acre family farm, as a donation in 1996 by Mildred and Arthur Bolton for ecological research (Evans 2019, ESWIRC 2008). The total acreage of the swamp today is approximately 120 acres (Hudson and Hardig 2015). Ebenezer Swamp is an upland hardwood seepage swamp and its hydrology stays wet year-round due to an underground aquifer system, and flow from surface water sources after heavy rains (ESWIRC 2008, Evans 2019). Annual streams feed the northern end of the swamp (Hudson and Hardig 2015). Ebenezer Swamp has nine species deemed imperiled, threatened or endangered (Hudson and Hardig 2015). The dominate vegetation of the swamp is the tupelo gum (*Nyssa sylvatica*); less dominant vegetation includes the red maple (*Acer rubrum*), swamp dogwood (*Cornus foemina*), and the sycamore (*Platanus occidentalis*) (Evans 2019). Dominance of a species means that if that species were to be removed from the ecosystem it would cause dramatic alterations (Evans 2019). For example, beavers alter the hydrology expanding the breath of the swamps; therefore, they are the dominant animal species
(Evans 2019). Ebenezer Swamp’s identity depends on the many living and nonliving interactions, a species loss or change in water input could alter the ecosystem significantly.

The school’s possession of the swamp had turbulent beginnings with a lawsuit, in the Shelby County Circuit Court in 2006, between the University of Montevallo and the Middle Tennessee Land Development Corporation that wanted to develop a limestone quarry approximately half a mile upstream; the development would ultimately cause a collapse of the swamp’s ecosystem through water table damage and contamination (Hudson and Hardig 2015). The event created an environmental unifying moment between the university, the city of Alabaster, and the residents of the area when they prevailed in what could have been an ecological disaster and loss of educational opportunities to the surrounding public schools, youth participation organizations, and the university (ESWIRC 2008). The fight for the swamp had positive ramifications: “… it unified the community and the academy, it created a precedent for future lawsuits, and it fostered the sustainability-based idea of balancing the issues of economics, ecology, and equity” (ESWIRC 2008). The event showed that isolated wetlands like Ebenezer Swamp are still in need of legislative protection, and urbanization can affect a swamp negatively even if the swamp is not directly being disturbed (Hudson and Hardig 2015). The University of Montevallo developed a three-part plan for the use of Ebenezer Swamp: “(1) Preserve the existing habitat, (2) Conserve rare and endangered species within the habitat, and (3) Educate the general populace regarding the importance and fragility of wetland habitats” (ESWIRC 2008). The Development Plan of the swamp although not complete, still has made a major impact to the community and school (ESWIRC 2008). Ebenezer swamp exist today with 1,000 feet of ADA-compliant boardwalk granting access to visitors, educational groups, and researchers (Hudson and Hardig 2015).
The Secret Swamp Aesthetic

Swamps bear a scarlet letter to their name, hence their common pairing with dismal. The swamp is a misunderstood landscape that for the majority intuitively conjures un-picturesque imagery in the mind’s eye (Rolston 2000). Humans experience an innate aesthetic experience to nature which transpires into symbolism ingrained into language (Kellert 1993). Rolston (2000) states, “A ‘beautiful bog’ or a ‘pleasant mire’ are almost a contradiction in terms. Mountains are sublime, swamps are slimy.” The origins of this negative association are still unknown but may one day be explained if E. O. Wilson’s Biophilia Hypothesis holds true. Biophilia is defined as “…the innately emotional affiliation of human beings to other living organisms … [and that] … multiple strands of emotional response are woven into symbols composing a large part of culture” (Wilson 1993). Where there is a love for certain natural landscapes, there is also fear of others. In this case, the landscape aesthetic of the swamp may trigger a “biophobic” response (Rolston 2000). Biophobia is caused by fear responses of our genetic ancestors and behavioral learning; the concept “…has received support both from conditioning studies as well as behavior-genetic research” (Ulrich 1993).

Habitat selection and landscape aesthetics converge since an unfit habitat for an organism typically causes a negative response (Heerwagen and Orians 1993). Wetlands may trigger a biophobic reaction because they are boundaries between the land and water making it hard to utilize and be inhabited by humans like the firm ground of a savannah-type landscapes our ancestors evolved (Rolston 2000). Swamps are also home to species we commonly fear such as snakes and spiders (Rolston 2000). The deceiving mud of the swamp is also something to contest with as the terrain detours navigation, exploration and possible retreat (Rolston 2000). Navigability is critical to one’s response since pathways make entering an unfamiliar
environment feel more secure (Heerwagen and Orians 1993). Decay processes are evident in the swamp such as dead logs and leaf debris that decay slowly (Rolston 2000). The swamp landscape can be seen undesirable since humans are slowed to navigate this terrain, and it takes discernment to admire beauty among the multitude of biophobia triggers (Rolston 2000).

Although humans are not adapted for easy living in the swamp, numerous species thrive in their niche habitat (Rolston 2000). There are beautifully colored waterfowl, reptiles, insects, and orchids that can be found in the swamp. The swamp can be further aesthetically appreciated with an understanding of the ecosystem, all the parts living and nonliving, contributing to the seemingly chaotic order (Rolston 2000). Myopic perspectives of the swamp limit those from experiencing a unique ecological identity:

Wetlands do teach that everything is doomed to die, and the debris so evident from past life—now fallen, black, rotting—reminds us of this. Take a handful of the black ooze, a mixture of silt and partly decayed plants and animals that once lived here and have gradually piled up on the bottom. Wetlands are filled with corpses, and they remind us of our mortality. But life inevitably goes on. That handful of ooze may contain more living organisms than there are humans in the world. After one has become ecologically sensitive, the system takes on the qualities of a kaleidoscope, in which the accidental tumbling of bits and pieces, each with its own flash and color, constitutes a set of patterns of interdependent parts coacting, patterns repeated over time and topography, endlessly variable and yet regular, buzzing with life. A lingering aesthetic experience of nature, always running subliminally, is of life persisting in the midst of its perpetual perishing. (Rolston 2000)

A swamp ecosystem becomes a matrix of interdependent parts that becomes the source and support of its members (Rolston 2000). The unique complexity of wetland ecosystems is the reason why one cannot simply dump water in a large hole and expect the same complexity of an ecosystem to form—it takes all the living members of bacteria, fungi, plants, protists, animals—as well as the nonliving conditions present in soil composition, hydrology, and available
nutrients (Rolston 2000). The swamp aesthetic becomes a perspective of appreciation to the interconnectedness of the living and nonliving. The swamp members we gravitate aesthetically towards, such as a swamp orchid, cannot be solely admired without also admiring its “unaesthetic” contributors, e.g. insects, bacteria, and soil, that contribute to the flower’s survival (Rolston 2000). The potential biphobia of the swamp may be an intuitively engrained fear branded into the genetics of humans, transcending into our language with negative symbolism, and with increased ecological awareness a new appreciation of swamp landscape aesthetics emerges (Rolston 2000).

**Microbial Art**

The second symbol to be reframed are microbes, encompassing a variety of species of bacteria and fungi that are among the smallest living units of an ecological system (Bone 2018). Microbial art unveils hidden worlds to be experienced by the viewer. When a microbe’s hidden omnipresence becomes visible on our expired food, drains, or other possible encounters, their grotesque growth can cause a sense of unease. This “unease” could be used to an artist’s advantage. Collectively, microbes inhabit a multitude of unexpected places and have the earth abundant with hidden life. A handful of soil for instance outnumbers humans significantly in the amount of life hidden within “… 10 billion to 50 billion bacteria, hundreds of millions of viruses, 100 million different fungal cells, several thousand protists…” (Bone 2018). Bacteria, although unseen, have a phantom-like force to possible sensory inputs associated when entering the swamp space: odor, gnarled trees, and bubbling waters (Dyer 2003). The smell of the swamp is caused by bacterial decomposition of material in reduced conditions (Dyer 2003). Often bubbles can be seen rising to the surface of swamps and marshes, which are produced by a special group of bacteria called methanogens, and a buildup of their excreted methane can erupt in flames.
Appearances of vegetation may also be affected by bacteria; species of agrobacteria effect the appearances of trees causing some to have a gnarled, haunted look by producing deformities to their structure (Dyer 2003). Invisible microbes with enough time and numbers become visible from the collective force they have on their surroundings and revealing the identity of these hidden ecological members have the potential to be incorporated into art for educational purposes.

One can gather how viewers perceive microbial art through BioArt works such as those of Sonja Bäumel. She is a multidisciplinary designer whose inspiration of microorganisms living throughout the human body has become a growing part of her research (Myers 2015). BioArt remains a broad genre encompassing a verity of works that fall within the spectrum of art and biology practices, e.g. Sci-Fi works like Patrica Piccinini’s creature sculptures to transgenetic manipulation like GFP Bunny by Eduard Kac; however, a general definition for BioArt is “art created in association with nonhuman organism” (Kerbe and Schmidt 2015; Myers 2015). The term still is under revision and may go by other terms to better express the work (Kallergi 2008). BioArt varies in materials, methods, approaches, and intentions thus making it hard to pin down a proper all-encompassing definition (Kallergi 2008). The processes behind the works sometimes are dependent upon lab equipment, while others are accessible by amateur biologists (Kallergi 2008). For the purposes of this paper, agar art and microbial art were used interchangeably since they most specifically describe the art created in the Ebenezer Swamp Microbial Art Project. Agar art uses petri dishes to produce imagery by growing bacteria, and it is even recognized by the American Society for Microbiology in a yearly agar art contest (“Agar Art” 2019). BioArt works are often exhibited in contemporary art institutes, conferences, symposia and workshops (Kallergi 2008). A survey of visitors from a BioArt exhibition in Vienna, Austria, held in June
2011 -which Sonja Bäumel’s work was displayed in the entrance hall- showed a common acceptance for the incorporation of microbes into art among gallery viewers (Kerbe and Schmidt 2015). The incorporation of microscopic bacteria into art was accepted readily, rather than macroscopic animals which posed ethical consideration (Kerbe and Schmidt 2015).

Sonja Bäumel’s approach and concept of her microbial art best explains the potential concepts to be explored in the Ebenezer Swamp Microbial Art Project. Sonja Bäumel’s collaborative project “50 Percent Human” is based off research that microorganisms coinhabit and make up half of the cells of our body, and it is example of how artists are working with scientist to use art to translate scientific information (Bäumel et al. 2018). The project emphasizes the pairing of biology with art to translate scientific research and challenge the idea of the negative associations of microbes as disease harboring creatures to be feared and encourages viewers to meet the invisible members of their bodies (Bäumel et al. 2018). The installation sought “to encourage a OneHealth perspective of microbes as a web connecting the health of humans, animals, and plants – all living species and the environment” (Bäumel et al. 2018). By layering the microbial imprint with the story of the swamp, an ecological conversation may unfold from an artistic catalyst.

Art in Science Communication

BioArt has the potential to communicate science, although the reasoning behind the work and the audience needs to be in mind for effective science-art communication. Art has been intertwined with social activism against issues such as the degradation of the environment and recognition is increasing in art’s ability to initiate paradigm shifts of thought (Curtis, Reid, and Ballard 2012). In response to anthropogenic environmental changes, there are increasing innovative approaches in using art for science communication in both formal and informal
settings to improve scientific knowledge (Lesen, Rogan, and Blum 2016). Arts-based science communication individually can inspire discovery and intuitive thinking and improve engagement on ecological topics within the community (Lesen, Rogan, and Blum 2016). When it comes to the dissemination of complex scientific language, art has the potential to evoke an emotional response; this pathos has the potential to “aid memory and analysis of the subject of the artistic work” (Curtis, Reid, and Ballard 2012). Of two hundred art-science collaborative works within the U.S. examined in one study, the majority have had an environmental agenda (Lesen, Rogan, and Blum 2016). Unlike the sciences which can be restricted in audience, the arts are like the common vernacular that can be addressed to larger audiences and are more likely to bring communities together (Curtis, Reid, and Ballard 2012). There is a small but growing number of contemporary scientist that are teaming up with the arts to aid in research, gaining creative perspectives, and communicating research to the public that might not otherwise have access to the knowledge (Curtis, Reid, and Ballard 2012). An increasing number of labs around the world recognize the importance of such collaboration and are hosting artist in residence to facilitate the collaborations forward (Reid, and Ballard 2012).

Artist are the creative initiators and scientists have rarely tapped expertise from artist, and the enhanced communication between the two can potentially benefit both parties (Kallergi 2008). In 2003, the Ecological Society of Australia (ESA) had a unique convergence of the arts and sciences at their annual conference, a case study of the effects of the integration of art into the conference reviled that approximately 50% of the responding scientist and research students were encouraged by the program to find new ways to communicate science (Curtis, Reid, and Ballard 2012). Although there was a positive response of the collaboration and artist potential to shift how science was communicated to the public, only 24% of the respondents considered
using art to communicate their research (Curtis, Reid, and Ballard 2012). The case study ultimately showed the positive response of ecologist to the use of the visual and preforming arts to communicate scientific ideas; however, few scientist wanted to build a bridge between art and science, and there is a need to change these attitudes to have a median to communicate science to the public (Curtis, Reid, and Ballard 2012).

A show incorporating microbes to communicate the science behind the swamp would need clear communication to the exhibition audience to limit confusion and increase positive feedback. The reasoning behind creating these science-art works additionally needs to be in special consideration as Stracey (2009) explains, “the problem with silent scientists is that they risk mirroring a limiting art-for-art’s sake attitude held by some artists with a science-for-science’s sake approach that is seemingly uninterested in the broader, cultural application of collaborative developments.” When exhibiting BioArt one has to keep in mind clear communication about the unique hybrid to visitors to avoid confusion, the Vienna exhibition reviled the urge of visitors to classify the show as strictly art or science which potentially lead to disapproval (Kerbe and Schmidt 2015). Those that saw the exhibition in the lens of science “saw the exhibition as a science communication activity that used artists to show the science in an aesthetically pleasing way but felt it was not satisfactory in terms of its ‘real’ goal, namely informing about a particular scientific field” (Kerbe and Schmidt 2015). The visitors that saw the exhibition as an art show did not respond as negatively to the lack of science communication (Kerbe and Schmidt 2015).

**Materials and Methods**

Forty 8.5 cm diameter nutrient agar petri dishes, ordered from Carolina Biological Supply Company, were used in culturing microbial specimens from air, soil, and vegetation samples at
the University of Montevallo Ebenezer Ecological Preserve on June and October 2019. Unlike typical agar art that seeks to manipulate growth of samples to produce imagery, this process sought to keep the organic growth and incorporate ink media on top. ArtResin encapsulated the growth within most dishes and Liquitex inks were used to create imagery onto the layers of resin. Biological methodology derived from Betsy D. Dyer’s *A Field Guide to Bacteria* (2003) and Jens W. Knudsen’s *Biological Techniques* (1966). Biological methodology was combined with inspiration from the work of artist Sonja Bäumel for direction for the final art product; however, some direction was of the artist’s intuitive response to the materials. The goal of the project was not to recreate an existing work’s process but discover a process with the artist’s style that could be effective in visually communicating the swamp’s ecosystem to a gallery audience. This art process sought to identify the research questions of how well resin preserved petri dish samples for artistic use and if the resin would allow the artist to incorporate crisp imagery.

An amateur scientist or inquisitive artist has the potential to easily access the materials to execute the biological portion of this project since a functional lab is not necessary; however, precautions should be kept in mind to both swamp traveling and bacterial culturing. A novice swamp explorer must contend to the “pestiferous atmosphere,” such as biting insects, skin irritating plants, or wild animals (Larson 1995). Preparing for the conditions of the desired wetland landscape can make the sample and imagery collection more enjoyable to the visitor. Navigating a swamp can be cumbersome due to the saturated earth, but finding a local swamp with a boardwalk grants accessibility; therefore, acquiring one access to more biological sampling and imagery for art. One should attempt to not travel alone, or let others know one’s location when traveling to any wetland, especially if venturing into the deceitful depth of land-water by foot (Larson 1995). Precautious methods for culturing microbes were followed as
directed in Dyer’s *A Field Guide to Bacteria* pages 313-314 (2003). When culturing swamp microbial specimens, nutrient agar is a common growth media to be used since microbes can be easily cultured; however, there is the possibility of growing pathogenic species (Dyer 2003). Bleach should be used to destroy unused cultures to prevent possible pathogenic microbes from being spread (Dyer 2003).

The procedure for creating this type of agar art began by collecting microbial samples in petri dishes of vegetation, air, and soil origin. For vegetation and soil, a standard method of a using moistened, sterile cotton-tip swabs were used to collect microbes off desired solid surfaces (Knudsen 1966). Once a sample had been swabbed, the petri dish was laid on a flat surface, lid slightly opened, and the agar was then inoculated with the sample (Knudson 1966). Soil from June 2019 was collected and stored in a plastic bag, then a swab was used to directly inoculate the dish with soil, which is not standard technique when collecting soil microbes. Another artistic rather than standard biologic approach taken was introducing portions of vegetation to be embedded into the agar. Air sample collection was a passive process where dishes were left exposed to air of the preserve for 30 minutes (Knudson 1966).

Once a petri dish had been inoculated, introduced to a solid object, or left exposed to the air— the vessel was capped, the edges were tapped, and then flipped upside down to prevent moisture falling back into the dish (Knudson 1966). Dishes were then stored in a shoebox lined with tinfoil and stored in a warm dark area (22-37 °C) away from any food/human use to culture (Knudson 1966). Cultures have a growth limit due to metabolic activity decreasing to waste accumulation and after a week dishes are typically re-cultured (Knudson 1966). At this stage, resin was incorporated to identify its effectiveness for culture preservation in potential gallery display and imagery incorporation. To note, G-Flex epoxy was of the first attempts to preserve
and incorporate imagery into dishes, but the item was not satisfactory to the process due to odor and opaqueness that hid microbial growth from top view. Clear ArtResin was satisfactory with mild odor and glass-like quality. The resin was poured into dishes when the microbes reached maximum growth. A propane torch was then used to rid the resin of bubbles. Preserved dishes cured for three days before further artistic handling.

To test the effectiveness in resin encapsulated dishes ability to incorporate imagery, the plates with hardened resin were handled with gloves and sterilized as a precaution with diluted bleach. Imagery for reference had been acquired the days of sampling through field sketches and photo documentation. Liquitex inks were used to depict the imagery acquired. A cured dish was either drawn directly onto the harden resin by a dip pen with a Speedball nib, or a cut drawing from clear acetate film was transferred to the dish. Transparent layering effects were created by diluting the ink with water then directly painting onto the resin or acetate film. Once the ink had dried, another layer of resin was added to preserve the art layer beneath. Resin was also used to embed the acetate film with the ink drawing. Depth was created by repeating the layering of resin and ink drawings. The works were photographically documented with an iPhone 10 by placing dishes on a light table, taking a picture of the top of the dish, and moderately editing out light exposure in Adobe Lightroom.

Results

The initial microbial art produced, following the proposed process of the Ebenezer Swamp Microbial Art Project, was effective at preserving the growth on the agar and incorporating imagery; however, unexpected results occurred. Figure 1 shows a petri dish that has growth encapsulated successfully in ArtResin. Figure 1 models what many dishes with biological samples looked like before imagery was incorporated. The typical growth patterns
produced were uncolorful circular light and dark colonies that were large and isolated, or small and close in proximity. Countering the imagery of Figure 1 are the peculiar results of Figures 2 and 3. *ArtResin* was used solely in all dishes except Figure 2 which additionally incorporated a product unsatisfactory to the process, G-Flex Epoxy, that dried opaque orange and produced irritating odors when mixing the resin and hardener. A potential outcome of pouring resin was noted in Figure 3, that was the only dish to have a collapsed resin cap. Results following incorporation of environmental samples embedded within the resin to produce imagery are seen in Figures 4 and 5. Any line work was incorporated successfully with acrylic inks by brush or dip pen. Results following utilization of acetate paper to pre-draw imagery to be embedded within the resin are seen in Figures 6 and 7.

The incorporation of vegetation and soil samples in Figures 4 and 5 produced an ideal silhouette effect when used on the light table. Figure 4 contains portions of vegetation collected from a sedge plant the field. The agar produced slight growth from imprints of the plant fragment, residual seeds, and embedded vegetative fragments. A reference photograph and field drawing of a spiderweb on the boardwalk was used to create an effect of suspending the plant fragments with layers of red and white ink drawn lines. A circle of swamp soil was used in the dish of Figure 5. Limited visible microbial growth was produced around the soil circle so ink embellishments, inspired by mycorrhizae and vein patterns in red ink, compensated for the lack of interesting background texture.

Incorporation of transparency acetate paper effectively layered imagery upon the petri dish resin base of the swabbed subjects. An unclassified swamp vegetation observed from field imagery collection is depicted in Figure 6. Staggered layers of the subject and its outline on acetate were incorporated into this dish. The layering was hidden within the resin. The final dish,
Figure 7, displays a scene of an ant interested in a white substance on a tree. This substance was later discovered to be waxy secretions of wooly aphids, and the carpenter ant harvest honeydew the aphids secrete in exchange of protecting the aphids- a symbiotic association (Hadley 2019). The white substance was swabbed, and it was the only plate that produced a white, lace-like growth pattern. An image of what was occurring at the site of the swab was laid on top of the resin. Additional layers of ink and resin were poured on top of both Figures 6 and 7 to increase the illusion of depth.

Fig. 1 An example of a standard base of the art process with a biological sample grown in a petri dish and encapsulated with a resin top. This dish cultured air microbes.
Fig. 2  G-Flex Epoxy was not effective to this art process, producing an opaque top coating and noxious odors. Photograph documentation was reversed capturing image from bottom side of dish, otherwise details would be indistinguishable.

Fig. 3  A collapsed resin coating with clear, low odor ArtResin. The initial pour seemed successful, but weeks later collapsed as seen on the left side of image.

Fig. 4  Invisible Web. Two fragments of an unidentified sedge plant species incorporated

Fig. 5  Sanguine Connection. A soil sample has been incorporated into the petri dish laced
into the agar art. Limited growth occurred and seeds can be seen scattered in the background.

with vein-like lines. Limited growth occurred around the soil.

Fig. 6  *Dissonance*. Imagery of a sedge plant from field sketch along with a disjunct outline in red. There was small blochy growth occur that occurred throughout the dish.

Fig. 7  *Simbiotic Snack*. A carpenter ant enjoying the sugary secretions of wooly aphids. Of all the dishes, this one had a unique white, interlacing growth pattern.

**Discussion**

The incorporation of imagery with inks, embedding natural elements of the swamp, and the archival potential of the pieces were the most favorable outcomes when producing microbial art in this manner. The dishes allow for the metabolic peak to be obtained of the culture then sealing it within resin. Avoiding having to maintain a microbial culture could become costly and difficult to manage for amateur microbial culturing. A benefit for this process is that potential exhibition the artwork would not cause issues like ‘wet works’ that require nutritional input for suitability which can become cumbersome in a museum setting (Kallergi 2008). Additionally, without lab access, the process was kept more affordable due to limiting the number of complex
lab procedures (Kallergi 2008). Line control on the resin surface was effective throughout the works of art.

Unfavorable outcomes when producing works of microbial art involved loss or culture’s texture/color and melted petri dishes. Resin has potential to create depth and imagery, but it come with issues. When pouring resin, the initial vibrancy and details of the microbes growing on the agar are lost. To combat this, a touch up with transparent ink was applied to top of the layer of hardened resin to enhance the base microbial imagery such as in the lace-pattern brough out in Figure 7. Since a source of heat must be used to rid the resin of bubbles, this has the potential to melt the plastic petri dish if one is not careful as seen in the melted edge of the dish in Figure 7. Glass dishes may prove more useful at this stage, but a delicate hand when applying heat did not melt any of the other plastic dish edges.

The initial process of the Ebenezer Swamp Microbial Art Project was without a lab or additional members. Future projects strive for furthering incorporation of biological technique and adding team members. One possible future project could be identification out the microbial community of the swamp through PCR like in Bäumel’s “50 % human” (Bäumel et al. 2018). An additional exploration of growing microbes are the slower, alternative methods such as the original culturing method by using a boiled potato and collecting soil in a Winogradsky Column (Dyer 2003). A more thorough approach could be taken to cultivating field specimens. By understanding the habitat and a species to be obtained, an ideal environment for cell development can be nurtured (Knudsen 1966). Microbial species exist in a vast spectrum of niches/ ecological amplitudes to temperature, moisture, pH, and O2 levels. When culturing microbes, special consideration to what liquid or solid “medium” of nutrients is used, as well as the artificial habitat conditions since not all microbial stains thrive at the same conditions
(Knudson 1966). Therefore, special agar mediums and growth conditions could yield different microbial growth. Additionally, required sterilization, equipment and accessories, such as an incubator, are culture dependent (Knudson 1966). Successful cultures can be used to view bacteria under the microscope, stains make this easier (Knudson 1966). Seeing the microbial cells would give an additional layer of unveiling. Incorporation of lab methods could explore further areas of the Ebenezer Microbial Art Project.

The growing trend of science-art collaboration in the potential for new engagements of the communication and interaction with scientific research could have been executed better with a team of scientists and artist such as “50% Human” (Bäumel et al. 2018). The need for public action for aid to mitigate and hopefully reverse habit loss and ecosystem collapse is dependent upon community outreach, and that outreach can only be met with effective scientific ecological communication (Curtis, Reid, and Ballard 2012). Gallery exhibition falls into the category of arts-based communication; however, a community-based approach is more effective instilling concepts. The community-based approach is more complicated to synchronize, and the project must be thoroughly planed for effectiveness in initial artist-scientist collaboration to the final dissemination of scientific understanding to the public (Lesen, Rogan, and Blum 2016).

The initial phase of the Ebenezer Swamp Microbial Art Project successfully identified that resin could be used to some degree of success in petri dishes to preserve growth for imagery incorporation. Ebenezer Swamp acts as a microcosm of both the ecological prosperity and adversity wetlands face in America. The biophobic triggers the swamp conjures within humans can be nulled with the right ecological based perspective. Microbial art reveals the ecological identities of the smallest forms of life, and the revelation builds upon the interconnects such as informed in Bäumel’s “50 % human.” Art and science collaborations are proving that
communicating ecological knowledge is an effective approach of achieving such paradigm shifts in thought. The pairing of the biological culture with the artistic hand gives leeway into a conversation of each piece based off the what was cultured, and the imagery produced. The Ebenezer Swamp Microbial Art Project has further avenues of science-art to explore within a gallery setting and has the potential to branch further into the community for scientific communication of the swamp and the hidden microbial world.

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References

“Agar Art,” American Society of Microbiology, accessed June 16, 2019,

Bäumel, S., Tytgat, H. L., Nemec, B., Schmidt, R., et. al. “Fifty Percent Human- how art brings
us in touch with our microbial cohabitants,” Microbial Biotechnology 11 (2018): 571-574.

Blake Hudson and Mike Hardig. “Isolated Wetland Commons and Constitution,” BYU Law


ESWIRC. The University of Montevallo’s Ebenezer Development Plan Update. Montevallo, AL:
University of Montevallo, 2008.

Evans, R. “The Story of Montevallo: Part One,” Vimeo, May 1, 2019, video,

Hadley, Debbie. "How Ants and Aphids Help Each Other," ThoughtCo, last modified 2019,


