Rage and social media: The effect of social media on perceptions of racism, stress appraisal, and anger expression among young African American adults

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RAGE AND SOCIAL MEDIA USE: THE EFFECT OF SOCIAL MEDIA CONSUMPTION ON PERCEIVED RACISM, STRESS APPRAISAL, AND ANGER EXPRESSION AMONG YOUNG AFRICAN AMERICAN ADULTS

A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy at Virginia Commonwealth University

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“No matter what accomplishments you make, somebody helped you”. -Althea Gibson

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Abstract

By Morgan Lindsey Maxwell, B.S., M.A., M.S.

A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy at Virginia Commonwealth University.

Virginia Commonwealth University, 2016

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Recently, social media has become a sociopolitical hotbed for discussions of racism, police brutality, and individuals’ reactions to the former. However, no extant studies have questioned if social media use increases how often African Americans vicariously and/or personally experience discrimination in America. The current study sought to answer this question. By examining the relationships between social media use, general stress, race-related stress, and anger expression, and the mediating role of perceived racism, this study explored if frequent social media use influences young African American adults’: a) perceptions of racism, b) experiences with general and race-related stress, and/or c) expressions of anger. Guided by the Stress and Coping Model (Lazarus, 1984) and Social Identity Theory (Tajfel, 1980), the current study conducted an online survey of 199 young African American adults between the ages of 18-29 using Amazon Mechanical Turk (M-Turk). The following measures were employed: the Perceived Stress Scale (PSS), The State-Trait Anger Expression Inventory (STAXI-II), the Prolonged Activation and Anticipatory Race-Related Stress Scale (PARS), Frequency of Facebook and Twitter use scale, Facebook Interactive Questionnaire (FBQ), the Racism and Life Experiences Scale- Brief (RaLES), and Everyday Discrimination Scale (EDS). Results showed
Facebook interactive use significantly predicted anticipatory bodily alarm response and anger expression, but not anticipatory race-related stress. Facebook and Twitter use predicted anticipatory race-related stress, anticipatory bodily alarm response, and anger expression. Neither Facebook interactive use or Facebook and Twitter use predicted general stress. However, serial multiple mediation analyses revealed perceived racism and everyday discrimination fully mediated the relationship between Facebook interactive use and anger expression, such that the more young African Americans perceive racism and everyday discrimination via social media the more anger they experience. Findings also revealed perceived racism and everyday discrimination indirectly affected relations between Facebook interactive use and anticipatory bodily alarm response, anticipatory race-related stress, and general stress. Health implications and directions for future research are discussed.
“To be a Negro in this country and to be relatively conscious is to be in rage almost all the time”

- James Baldwin

As the 2016 Presidential election approaches, issues surrounding race, the police shooting deaths of unarmed African Americans (Sinyangwe, 2015), and discrimination have taken center stage—shaping political dialogue, inciting social debates, and dividing public opinion (Greenberg, 2015; Horowitz, Corasaniti, & Southall, 2015, Muhammad, 2016). Anti-Hispanic and anti-Muslim rhetoric from a Presidential candidate, along with his surging popularity among Americans wishing to “make the country great again” (Stein, 2016), have effectively unhinged perceptions of a “post-racial society.” As they depart from the neoliberal narrative of colorblindness, such blatant displays of racism have forced the nation, and those that defend a “race-less” agenda, to confront some ugly truths about modern-day race relations. That is, contrary to the beliefs of some, American racism is not a social hindrance of the past, but rather a serious and ever-present impediment to equality and progress (Stein, 2016).

Important to note is that many of these race-related events may have gone unnoticed had it not been for the pervasive reach of social media and the incessant sharing activities of its users. Social media—defined largely as any social networking site that provides online spaces where individuals can construct profiles that can be connected to others to create a personal network (Cheung & Lee, 2010)—is unequivocally the most popular form of communication among youth and young adults today (Chaffey, 2016). As it provides its users with a continuous flow of exchanged personal and worldly information, social media has framed and defined the nature and extent of contemporary human interactions. The infinite opportunities to engage other users daily, if not constantly, has essentially negated the need and utility of proximal relationships, and vastly extended individuals’ social networks.
Recently, social media has become a sociopolitical hotbed for discussions of racism, police brutality, and individuals’ reactions to the former; a place where minorities—amidst hegemonic discourse and counterclaims of exaggerations and falsifications—fight for the legitimization and acknowledgement of their very real experiences with overt discrimination and microaggressions (Nakamura & Chow-White, 2012). Reflected in social media users’ newsfeeds (i.e., timelines of posted user-generated content), millions of people are using the platforms Facebook, Twitter, and Instagram provide to publicly opine about, discuss, and circulate race-related issues (Benedict, 2016; Norton, 2016; Steele, 2016). In this regard, social media sites (SNS)s are now viewed as primary sources for race-related news (Vega, 2016). In fact, it can be argued, that if it were not for the sharing of viral videos on Facebook, or the retweeting of such hashtags as #OscarsSoWhite, or the protests of the #BlackLivesMatter (BLM) social media movement, some Americans may still believe racism to be a figment of minorities’ imaginations.

To a certain degree, social media and its users have reopened purportedly healed racial wounds, insomuch as its contents and user-activity acutely reveal racism to be a surviving, if not thriving, fundamental American system through which political, economic, and social power is unequally exercised by a few to oppress many. Direct and cumulative experiences with this system of racism, along with the prejudices and indignities it can produce, have been well documented in the literature as potentially psychologically and physically detrimental (Blank, Knowles, & Prewitt, 1970; Higginbotham, 2013). However, what remain unclear are the consequences of constantly viewing racist events and/or engaging in race-related discussions on social media. Particularly, how are African American social media users impacted by race-related content?
African American social media users have not shied away from actively participating in online discussions about race (Chappell, 2016). In fact, their social media activity—which has included repeated sharing of race-related hashtags (i.e., categorical phrases or words marked with a # to indicate the topic of a “tweet” or post) and viral videos of police perpetrating violence against Blacks (e.g., Eric Garner, Sandra Bland, and Tamir Rice)—has intensified the discourse (Blakinger, 2016). By expressing outrage online about systemic discrimination and racial terrorism (e.g., the church burnings and shootings in South Carolina [Greenberg, 2015; Horowitz, Corasaniti, & Southall, 2015]), African American social media users are effectively working to undermine notions that “racism doesn’t exist” (Freelon, McIlwain, & Clark, 2016).

What is important to consider, and most relevant to this study, is that such engagement in social media discussions about race and/or news of racial discrimination appear to simultaneously kindle frustration and race-consciousness among this group.

As the Facebook posts illustrated in Figure 1 and 2 represent but an example of hundreds of such responses to race-related topics in the social media world (Williams, 2015), I return to James Baldwin’s introductory quote and ask, does being Negro and more “conscious” of racism via social media exposure lead to more “rage” and stress? Posed differently, does social media
use increase how often African Americans vicariously and/or personally experience discrimination in America? The current study sought to answer these questions. By examining the relationships between social media use, general stress, race-related stress, and anger expression, and the mediating role of perceived racism, this study explored how frequent social media use influences young African Americans adults’ 1) perceptions of racism, 2) experiences with general and race-related stress, and/or 3) expressions of anger. Indeed, prior research has explored perceived racism as an independent factor that precipitates general stress, race-related stress, and expressed anger; however, few studies, to my knowledge, have examined social media use in relation to perceptions of racism, while none have examined perceived racism as a mediator of the relationships between social media use and negative emotional and stress responses.

**Why Explore Social Media Among Young African American Adults?**

Exploring the impact of social media use on young African American adults’ perceptions of racism is important for several reasons. One, young African Americans adults are heavy social media users. According to Pew Research, in 2014, 67% of African American adults online used Facebook, while 27% of African American adults online used Twitter, which was significantly greater than all other groups measured (Whites: 21%, Hispanic: 25%) (Duggan, Ellison, Lampe, Lenhart, & Madden, 2015). Moreover, most trending topics (i.e., most popular subjects “tweeted” about or searched for) among African American Facebook and Twitter users have been related to race, racism, and diversity in America (Demby, 2016; Freelon, McIlwain, & Clark, 2016; Sharma, 2013). Insofar as African American social media users frequently discuss race-related topics more than other groups, it is meritorious to explore the impact of heavy social media use on their perceptions of racism.
Second, this study stands to offer important information to the scientific community because of the social science literature that has already established several factors can influence (i.e., buffer or exacerbate) perceptions of racism among African Americans. For example, ethnic and racial identification have been found to affect perceptions of racism, such that those higher in racial centrality (Sellers & Shelton, 2003) and ethnic identity (Operario & Fiske, 2001) report greater perceptions of discrimination than those lower on these measures. Age and developmental stage can also be influential, in that as African Americans move from adolescence to adulthood, perceptions of racism appear to increase substantially and become more acute (Greene, Way, & Pahl, 2006). Other factors, including but not limited to gender (Perry, Harp, & Oser, 2013), mindfulness (Graham, West, & Roemer, 2012), racial socialization (Harris-Britt, Valrie, Kurtz-Costes, & Rowley, 2007) and skin color (Klonoff & Ladrine, 2000) can further impinge on African Americans’ recognition of and responses to racial discrimination. By ascertaining whether or not social media use is an additional factor to influence perceptions of racism, this study adds to a body of literature that significantly informs our understanding of the socio-environmental factors that shape African Americans’ experiences with and reactions to racism in America.

Third, this study is relevant because of the health consequences associated with perceived racism. For some time, and across multiple disciplines, researchers have unpacked the antecedents, consequences, and frequency of racial discrimination experienced by African Americans (Pieterse, Todd, Neville, & Carter, 2012). Chronic and cumulative exposure to or experiences with racial discrimination have been found to precipitate stress (Pieterse, Todd, Neville, & Carter, 2012), and such race-related stress can lead to negative health outcomes (Belgrave & Allison, 2010). These negative mental and physical health outcomes include but are
not limited to depression (Brittain et al, 2015; Hunter, Case, Joseph, Mekawi, & Bokhari, 2016), psychiatric distress (Pieterse, Todd, Neville, & Carter, 2012), lowered self-esteem (Utsey, Ponterotto, Reynolds, & Cancelli, 2000), and increased cardiovascular risk (Everson, Goldberg, Kaplan, Julkunen, & Salonen, 1998). Moreover, race-related stress has been linked to somatic and cognitive anxiety (Lee, Neblett Jr., & Jackson, 2015). Given these potential consequences of experiencing race-related stress, understanding if and how social media use increases young African Americans’ exposure to and perceptions of racism is a warranted empirical endeavor with significant mental and physical health implications.

With regard to the target population, the current study chose to focus on African American young adults and college students, rather than adolescents and older adults. While children and young teenage African Americans have access to social media sites, the current study focused on the perceptions of young adults, because they are less restricted by parental use, and as such, more likely to have a wide range of social media usage. Additionally, although Trayvon Martin and Tamir Rice were adolescent victims of discrimination, many of the victims of police brutality and racial discrimination are young African American adults (Swaine, Laughland, Lartey, & McCarthy, 2015). Thus, young adults may perceive these shared events as more threatening or stressful due to their similarity to the victims. Additionally, college students and young adults comprise the bulk of Black Lives Matter (BLM) protesters (Anderson, 2015). To this effect, as compared to young African American adolescents or elders, they are more likely to share race-related content with other young adults and/or have social media friends that are BLM participants.
Study Overview

Taken together, the present study stands to make a contribution to the literature insomuch as it: a) explores the impact of social media use among young African American adults, who are heavy social media users and more likely to be involved in the Black Lives Matter movement, b) adds to the literature that has identified certain factors that influence perceptions of racism among African Americans, and c) has significant mental and physical health implications. In the literature review to follow, I will review current research (particularly conducted among African Americans) on perceived racism, general stress, race-related stress, and anger expression so as to better contextualize the purpose and aims of the current study. In addition, the literature review discusses: a) the growth of scholarship on social media use, b) the limited research on social media use and perceptions of racism among African Americans, and c) the importance of questioning 1) whether or not social media use increases how often young African American adults are exposed to and perceive racism, and 2) how such exposure to racism may mediate levels of general stress, race-related stress, and expressed anger.

Media Consumption and the Dawn of Social Media

Since the advent of nationwide radio networking and circulation of newspapers in the 1920’s, social science has been preoccupied with the influence of mass and null media consumption on human behavior and perceptions. Studies on media and its ever-evolving forms have addressed attitudes toward police (Chermak, McGarrell, & Gruenewald, 2015), body image (Holmstrom, 2004; Stice & Shaw, 1994), and perceptions of crime (Chiricos, Eschholz, & Gertz, 1997). However, much of this research has centered on traditional forms of media, which has witnessed significant declines in popularity (e.g., television viewing, [Holbert, Kwak, Shah, 2003; Lenhart, Purcell, Smith, & Zickuhr, 2010], and magazines [Nellis, A. M., & Savage, J.,
More recent media research has shifted analytical directions—focusing instead on the surging presence and use of social media platforms, and the impact of this technology on social interactions and personal development (Onur, Emilio, Filippo, & Alessandro, 2014).

Emerging in the 2000’s, social media has become, without question, a staple form of media communication among youth and young adults today (Fuchs, 2014). Over the past decade, with increased accessibility to more affordable computers and the seemingly limitless advancement of cellphone technology, online use of social networking sites (SNSs) such as Twitter, Instagram, and Facebook has ballooned (Fuchs, 2014). From 2015 to 2016 alone, 219 million more people began using social media sites, a 10% global increase (Chaffey, 2016).

As the infographic in Figure 3 illustrates, with over 1 billion Facebook users, 300 million Instagram users, and over 9,000 tweets happening every second, the scope and use of social media platforms have reached unparalleled levels. Moreover, with 87% of all adult online users between the ages of 18-29 using Facebook (Duggan et al., 2015), social media consumption is

Figure 3. Infographic detailing the popularity of social media sites (https://leveragenewagemedia.com/blog/social-media-infographic/)
now considered to be a critical and daily part of youth’s and young adults’ social lives and identities (Sihvonen, 2015). This staggering explosion of social media platforms and their ubiquitous use and popularity among young adults have not gone unnoticed by the scientific community; studies around the world have begun to raise important questions about the potential psychological and social effects of this new wave of human communication (Charoensukmongkol, 2014; Kaplan & Haenlein, 2010; Fuchs, 2014; Mao, 2014).

Specifically, researchers have begun to wonder how, and to what degree, can SNSs influence the social interactions, perceptions, and mental wellbeing of its users? To this end, myriad topics have been explored, from habitual Facebook use (Vishwanath, 2015) and the effects of social media on emotions and branding (Ferrara & Yang, 2015; Hudson, Roth, Madden, and Hudson, 2015) to finding jobs via Twitter (Baker, 2015), choice of profile pictures (Kapidzic & Martins, 2015) and frequency of tweets (Cheung, Chiu, & Lee, 2010). Social media and its routine usage among young adults have presented an intriguing new way to analyze human interactions and the influence of socio-technical systems (Best, Manktelow, & Taylor, 2014; Kende, Ujhelyi, Joinson, & Greitemeyer, 2015).

**Risks and benefits of social media use.** Social media can positively and negatively influence how adolescents and young adults value themselves and/or feel socially connected (Cookingham & Ryan, 2015; O’Keeffe & Clarke-Pearson, 2011). This is in part due to its ability to open infinite social networks and quantify one’s popularity (i.e., number of “likes” and/or number of friends). Individuals’ social media networks can vary greatly in size and fall along a wide spectrum, encompassing anywhere from one to 10 million followers and/or friends. As it facilitates boundless exchanges of information via a highly complex web of multifarious networks, social media is one of the most interactive and capricious forms of technology on the
planet. Further, social media is distinct from other conventional forms of communication in that users can be sources of information, receivers, and/or both simultaneously (Perloff, 2014). Users can also customize and shape their experience by uploading photos and/or information about themselves, and bond with other users by networking around and sharing common interests.

Connectivity is inherent to social media networking, and drives much of its appeal. However, as an amplified social media footprint and/or a far-reaching network are often the goals of social media users (Cox, 2014; Greenwood, 2013), lack of or excessive connectivity can have negative consequences. For example, several studies offer evidence that frequent social media use can influence depression (Bickham, Hswn, & Rich, 2015; Ellison, Steinfield, & Lampe, 2007), clinical symptoms of bipolar-mania, narcissism, histrionic personality disorder (Rosen, Whaling, Carrier, & Cheever, 2013) and increased antisocial behaviors (Miranda, Blais-Rochette, & Borisevich, 2014).

Existing research on social media also points to its influence on body image and social comparison. According to recent studies, young women report spending around two hours per day on Facebook (Fardouly & Vartanian, 2015; Tiggemann & Slater, 2013) and are more frequent users of Instagram than males (31% vs. 24%) (Duggan, 2015). Given that 10 million new photographs are uploaded to Facebook every hour (Mayer-Schonberger & Cukier 2013) and over 40 million photos are uploaded on Instagram daily (Etherington, 2013), social media provides a daily forum where women can engage in appearance related social comparisons. Further, as content analyses of SNSs have shown images to be sexually suggestive and objectifying with a focus on ultra-thin, bony, and scantily-clad women (Ghaznavi & Taylor, 2015), the effects of these social comparisons can take a toll on the well being of young adult women.
For instance, Fardouly, Diedrichs, Vartanina and Halliwell (2015) randomly assigned young women to either browse for 10 minutes on Facebook, a magazine website, or an appearance neutral control website to determine differences in mood, body dissatisfaction, and appearance discrepancies. Findings from this study revealed participants who spent time on Facebook reported being in a more negative mood than those who spent time on the control website. Women high in appearance comparison tendency also reported more facial, hair, and skin related discrepancies after Facebook exposure than exposure to the control website.

Similarly, Fardouly and Vartanian (2015) found a positive association between Facebook usage and body image concerns, which was mediated by appearance comparison in general, frequency of comparisons to closer friends and distant peers, and by upward comparisons (i.e., judging one’s own appearance to be worse) to distant peers and celebrities. Such studies echo the findings of previous research (Tiggeman & Miller, 2010; Tiggeman & Slater, 2013; 2014), and underscore the merit of Perloff’s (2014) proposed framework for better understanding the effects of social media use on body image concerns and dissatisfaction among young adult women.

Yet, not all findings on the behavioral and mental health effects of SNS use among young adults have been conclusive. Best, Manktelow, and Taylor (2014) analyzed over 43 original papers from January 2003 to April 2013 and found online technology benefits included increased self-esteem, perceived social support, increased social capital, safe identity experimentation, and increased opportunity for self-disclosure. Notwithstanding, the authors also reported harmful effects, such as increased exposure to harm, social isolation, depression, and cyberbullying. While the interests of a majority of the reviewed studies resided in the negative effects of SNS use, most reported either mixed or no effects of online social technologies on adolescent well-being.
Recently, Patton and colleagues (2014) showed that youth violence (e.g., bullying, gang violence, and self-directed violence) increasingly occurs on online spaces. In fact, in a prior review, Patton, Eschmann, and Butler (2013) contend that “internet banging” (i.e., the use of social media to incite dares, trade insults, or make threats of violence) is an evolving cultural phenomenon facilitated by increasing use of social media. This line of research, albeit new, does seem to show promise, and is particularly relevant to African Americans, as “internet banging” has primarily focused on the activities of young urban African American males. However, despite this research, broadly speaking, limited social media studies have specifically targeted the African American population.

**Current research on African Americans, social media, and Internet usage.**

Examinations of social media use and general Internet use among African Americans have been relatively sparse, but are increasing. This is likely due to the previously discussed high social media usage of African Americans, and the growth and impact of “Black Twitter” (Gourarie, 2015). “Black Twitter,” as it is called, represents the substantial presence of Blacks on Twitter, and a visible online collective cultural identity, one described by Florini (2014) as, “millions of Black users on Twitter networking, connecting, and engaging with others who have similar concerns, experiences, tastes, and cultural practices (pg. 225).” Black Twitter’s reach and popularity—fueled by witty exchanges about culturally relevant and in real time news events—has become so influential that the Los Angeles Times hired a reporter to cover this sector of Twitter specifically (Greenberg, 2015). Other non-academic news outlets and blogging sites have also addressed the use and social activist potential of “Black Twitter” (Liston, 2013; Williams, 2015a). For example, addressing cultural differences in Twitter use and describing Black Twitter users, Manjoo (2010) wrote,
Black people — specifically, young black people — do seem to use Twitter differently from everyone else on the service. They form tighter clusters on the network — they follow one another more readily, they retweet each other more often, and more of their posts are @-replies — posts directed at other users. It’s this behavior, intentional or not, that gives black people — and in particular, black teenagers — the means to dominate the conversation on Twitter.

According to Meeder, a researcher of Twitter who has downloaded the tweets of over 100 million Twitter users, Twitter users who initiate Blacktags (i.e., Black-related hashtags) have more reciprocal relationships than other Twitter users (Manjoo, 2010). Meaning they’re following everyone who follows them. To Meeder, such patterns indicate Black people are uniquely using Twitter as a social tool, like a public messenger, to talk to one another rather than broadcast a message to the world (Manjoo, 2010).

Perhaps inspired by this type of coverage in mainstream media or the role of SNSs in broadcasting national sociopolitical affairs, a growing number of researchers are also taking note of young African American adults’ extensive use of SNSs. This is most evidenced by the increasing academic attention being paid to Twitter and Facebook activities. Of particular interest are the ways in which these SNSs have been used to express a cultural online identity and/or enhance online self-presentations. For example, Florini (2014) conducted a content analysis of tweets to highlight the use of slang and other cultural linguistics on “Black Twitter” to signify race. Results from her analyses revealed Black Twitter users engage in the linguistic practice of deploying figurative language, indirectness, doubleness, and wordplay to convey multiple layers of meaning, and construct an online Black cultural identity.

Williams and Marquez (2015) examined online self-presentations by surveying the
frequency of selfies taken by men. Analyzing racial differences, the authors found half of the Black and Latino participants had taken close to 800 selfies, whereas no White respondents reported taking that many. In their conclusion, it was posited that higher numbers of selfies among minority men likely reflect a cultural need to construct an online “macho” and confident identity. Black and Latino men may also be using selfies to actively assert themselves in a hegemonic society. Additionally, it was hypothesized that positively evaluated selfies may act as barriers against societal pressures and racial discrimination.

Also examining online self-presentations, Grasmuck, Martin, and Zhao (2009) analyzed the ethnic identity construction of college students on Facebook. Reviewing the Facebook pages of 83 students, including 16 African Americans, the authors took note of users’ profile pictures, social networks, and self-descriptions. Findings revealed African Americans, along with Latinos and students of Indian ancestry, were more intensely invested in their production of their identity formations. Specifically, they uploaded higher numbers of additional profile pictures, had a higher number of on-campus Facebook friends, and were more likely to signify their cultural tastes. African Americans in particular were also more likely to share favorite movies and provide an extensive blurb about themselves. Similar to Williams and Marquez (2015), the authors perceived the extensive online presence of minorities on Facebook as acts of resistance to color-blind ideologies. That is, the assertion of a prominent cultural and racial identity on social media directly challenges and works against the marginalization and silencing of minorities. In highlighting cultural differences in online presentations and social media dialogue, the above-mentioned studies offer empirical evidence of African Americans’ unique use of SNSs.

Puzzling, despite the research previously mentioned and the extant literature that
indicates women are perhaps more influenced by social media content than men, no studies, to my knowledge, have examined the online self-presentations of African American women. It is possible the previously reviewed studies on social media use and young adult women captured the experiences of Black women; however, as they failed to provide demographic information, it remains unclear if the construction of women’s social media identities differ along race. Because the experiences of African American women are colored by their complex identities, which lie at the intersection of race and gender, how they negotiate the social media landscape could be distinct from other groups of young adult women. Moreover, body images idealized within Black online spaces (i.e. thicker bodies, lighter skin, and longer hair [Stokes, 2010]), are vastly different from the body types idealized on White and traditional spaces (Perloff, 2014). To this end, future social media studies on the online self-presentations of African American women could offer some substantial insight into the influence of race and gender on social media use, and moreover, add to the body of research on intersectionality.

Nevertheless, African American women have been targeted in health and preventive health research on social media use, with some studies pointing to the potential therapeutic and behavioral intervention use of SNSs. For instance, Asiodou, Waters, Dailey, Lee, and Lyndon (2015) found in their qualitative study of 14 pregnant African American women and eight support persons that social media was used for perinatal and parenting education and social support. Altshuler, Storey, and Prager (2014) also found social media to be a frequently used health educational tool among an ethnically mixed sample of US adolescents and youth. Qureshi, Claudlo, and Méndez (2015) offer similar therapeutic recommendations—suggesting that social media (i.e., Facebook) be used to develop interventions for substance abuse among African American youth. Young, Berlin, Klausner, and Valente (2015) additionally believe social media
can be used to diffuse community-based HIV interventions. However, like other research on social media among Africans Americans, the strategy of employing social media for therapeutic reasons has not been well-explored.

While no extant studies have examined the ability of SNSs to increase African Americans’ perceptions of racism, several have captured and deconstructed their written online responses to American racism. Brock (2000) reviewed the blogs of 81 websites and 731 webpages to determine how African American Internet users reacted to the aftermath of Hurricane Katrina. Discursive analyses revealed African American bloggers: 1) sought to redefine the term “refugee” to better fit the context of the social conditions following the natural disaster, 2) accused the government of intentionally neglecting African American New Orleans residents and denying them the same rights afforded White residents, 3) clearly identified with and pledged allegiance to their racial identity, and 4) used web design (i.e., pictures representative of Black culture, cultural codes, and links to other websites deemed to be of interest) to attract Black readership. Such findings are important as they draw attention to African Americans’ use of blogging sites to address perceptions of ostensible racism and confront socio-political systems of white supremacy. Moreover, they illustrate the value of Internet activity to the formation of a collective African American digital identity.

In a similar discourse analysis, but of Tumblr posts, Kang (2015) examined African Americans’ feelings toward American structural racism and manifestations of racial microaggressions, and their attempts to resist against these social phenomena. Specifically, Kang examined how these feelings were articulated online in the interconnected social media space of Tumblr. Using a critical discourse analysis approach and reviewing over 100 posts, Kang identified 4 major themes: 1) barriers to learning resistance, 2) (in)ability to resist across physical
and online spaces, 3) competing constructions of ‘them’ and ‘us’, and 4) burden of resistance/compelled to resist. In her conclusion, Kang surmised, “discourses of resistance available on Tumblr express a desire for respect, an end to the everyday indignities of racial microaggressions, and a more inclusionary vision of universalist thinking (pp. 27, 2015).” In highlighting the use of a SNS to actively emote about and resist against racial microaggressions and hegemony, Kang’s qualitative analyses shed light onto the cathartic potential of social media posting. As Tumblr allows its users to uniquely express themselves through shared content and/or page design, it can provide young African American adults a safe and communal space to comfortably release their frustrations with negotiating American racial injustices. By measuring emotional and stress responses associated with social media use, the current study aimed to tap into these frustrations more directly.

The timely content analysis work of Bonilla and Rosa (2015) is also related and relevant to the current study. Following the death of Michael Brown in the summer of 2014, Bonilla and Rosa analyzed the potential for “hashtag” activism to forge a shared political temporality for African American social media users, and the use of strategic outlets for contesting and reimagining the materiality of racialized bodies. Using linguistic anthropological approaches, the authors interrogated the possibilities and pitfalls of “hashtag” ethnography, and investigated the legitimacy, longevity, and ephemeral nature of digital protesting—topics that have become increasingly relevant with the Black Lives Matters movement.

According to the authors, the function of hashtags extends beyond their ability to facilitate the categorization and retrieval of social media content. Based on their analyses of #Ferguson tweets and review of Facebook posts, hashtags also allow social media users to fashion socio-political meaning to their posts, which lassoes the content to other similar posts and adds to the
formation of an intertextual and highly dispersed web of information. In the case of Michael Brown’s death, analyses showed #Ferguson mediatized and further publicized the event, while #FergusonDecision informed protestors about the acquittal of the officer responsible for shooting the teen. To this effect, hashtags indeed created a shared political temporality for African American social media users, insomuch as they connected, in real time, those invested in and concerned about Ferguson news developments. They also worked to galvanize young African American adults and provoke more involvement in political activism. This manifested in “die ins,” demonstrations on college campuses, and other protests around the country.

Florini (2015) also addressed a highly publicized racial event—the acquittal of George Zimmerman (a then 28 year-old White/Hispanic man) for fatally shooting 17 year-old Trayvon Martin—by describing the use of a livestreaming podcast, entitled This Week in Blackness (TWiB!), to discuss the verdict. Instantaneously interactive, TWiB! became a multi-media space where listeners and TWiB! staff expressed their grief and anger about their perceptions of a lack of justice. Moreover, Florini described TWiB! as a trans-platform used to reject the neoliberal racial narrative of “colorblindness,” and reify a Black collective identity at a time of turmoil. While the long-term effects of this podcast on its listeners and participants were not assessed directly, its necessity and use speak to the potential importance of social media to African Americans, and further, elucidate the need to directly measure, either quantitatively or qualitatively, the impact of social media use on African Americans’ well-being.

Tynes and Markoe (2010) conducted the most relevant study to date on African American students’ responses to race-related content on social media. Two hundred seventeen African American and European American college students were shown images of two racially themed parties: 1) a party where attendees celebrated Martin Luther King Jr.’s birthday by wearing black
face and 2) a Latino landscaper party. Afterwards they were asked to respond as if they were writing a post on a friend’s MySpace or Facebook wall. Written reactions were then analyzed and categorized as either: a) not bothered b) not bothered-ambivalent c) bothered-ambivalent or d) bothered. Multinomial logistic regression analyses revealed among African Americans specifically, many were bothered (i.e., 25% bothered-ambivalent and 59% bothered) Some of the fictional wall responses categorized as “bothered” included, “You should be ashamed of yourselves! This photo is degrading, and disrespectful to the entire Black race. It is also very disrespectful to the people who sacrificed so much during the Civil Rights Movement,” and “This picture is pretty offensive, and I don’t get offended that easily. On MLK’s Birth- day???” (Tynes & Markoe, 2010, pp. 6).

Most European American students’ reactions were categorized as ambivalent, and moreover tempered by a subscription to a “colorblind” ideology. It was also noted that many of the bothered African Americans attempted to educate their “friends” about the insensitivity of the photo. Given these findings, the authors concluded African Americans to be much more reactive to images of racism on social media than their European American counterparts, which stands as a significant contribution to our understanding of racial differences in technology use and perceptions of online racism. However, because the sample only included 48 African American students, and “bothered” is a very ambiguous category, it is not exactly clear how African American students are affected by exposure to race-related content on SNSs. Thus, more studies are required to further unpack this uneasiness and determine if other emotional responses are associated.

In summary, it is evident additional research on the influence of social media use on the behaviors and well-being of young African American adults is needed. While it is clear that
young African American men and women are extensively using SNSs, we have yet to understand the consequences of their extensive SNS use. Tynes and Markoe’s (2010) research laid the foundational work, but more information is needed to further disentangle and better qualify young African American adults’ negative responses to race-related imagery on SNSs. Research has shown African Americans utilize social media hashtags and podcasts to express their emotions and thoughts about race-related events; however, such studies are limited and moreover, fail to measure these emotions and thoughts directly. Everyday young African American men and women turn on their smart phones and/or computers and are exposed to or engage in online discussions of American racism. To this end, current literature needs to reflect not only young African Americans’ SNS use, but also the influence of SNS use on their perceptions of racism and subsequent emotional and stress responses. Given the current state of American racial affairs, and the proliferation of race-related topics and online racism on SNSs, this line of research is both timely and important.

#BlackLivesMatter: Cyber Racism and Social Media

At the dawn of its inception, cyber proponents postulated the Internet would be a ‘raceless’ digital landscape, a technological utopia where race would be of no consequence and racism, forgotten “real-world baggage” (Daniels, 2015; Kang, 2015). Yet as time passed, this promise of colorblindness has since been debunked, as the anonymity of online identities and activities have allowed racism to flourish (Daniels, 2013). Labeled as “cyber racism”, most research on this contemporary form of discrimination has focused on hate-group websites and the effects of their inflammatory content on minority wellbeing (Daniels, 2013; Gerstenfeld, Grant, & Chiang, 2003; Hargrave & Livingstone, 2009; Kolko, Nakamura, & Rodman, 2000; Leets, 2001). However, as social media platforms are increasingly used to discuss and share
racist content, new doors for examining online discrimination and its effects have opened (Nakamura & Chow-White, 2012). Traditional hate speech websites have been found to affect ethnic minorities (Leets, 2001). But as young African Americans would have to actively search out and/or be targeted by these websites directly to be influenced by the content, the effects and reach of this form of online discrimination may be minimal. In fact, Leet (2001) found readers of white supremacist websites only perceived the messages as indirectly threatening, rather than imminently lawless. Other research has shown physical world discrimination and cyber racism to be equally detrimental (Awan & Zempi, 2016). However, as this research focuses on anti-Muslim discrimination, differences between African Americans’ real-world experiences with racism and online experiences are unknown.

Nevertheless, with the emergence of social media platforms, young African Americans may not need to be exposed to white supremacist websites or even have their own real-world experiences with racism to witness racial discrimination. Today, a young African American may view or perceive “racist events” by simply logging onto their social media accounts. As several non-academic articles have highlighted (Cole, 2014; Sarah, 2015; Thomas, 2015), it is on these platforms that many young African Americans are bombarded with often repeatedly shared content that highlight and discuss racism in America. In this sense, while young African Americans may not experience racism or discrimination directly, byway of frequent social media use and/or their social media friends (who are primarily African American), many are indirectly exposed to and/or vicariously experience racism daily. This is arguably more of the case for young African American social media users, who are more likely to care about race-related issues, share the content, and/or read about it from their African American social media friends compared to other social media users (Williams, 2015a).
As the published messages from social media users demonstrate in Figures 5 and 6, one of the most visible consequences of the rise of social media has been increased exposure to and discussions of race-related events. Over the past 5 years specifically, viral videos of police misconduct and the unlawful killings of minority men and women have flooded the newsfeeds of social media outlets (Cobb, 2016). According to Google trends, searches for “police brutality” in April 2015 reached 100% popularity, meaning that 10% of all Google searches for the U.S. and during that month included “police brutality” as a search term. Other hashtags and topics related to race and racism have also been heavily searched for, retweeted, and reposted, thus rendering them some of the most polemical and “trending” (currently popular) subjects on social media today (Florido, 2015; Demby, 2016). In a recent study conducted by the Center For Media & Social Impact, it was revealed that between 2014-2015, #ferguson was tweeted 21,626,901 times, variations of #mikebrown/michaelbrown was tweeted 9,360,239 times, #blacklivesmatter was tweeted 4,312,599 times, and #ericgarner as well as #freddiegray were retweeted over 4,200,000 times respectively (Freelon, McIlwain, & Clark, 2016). Additionally, the study found, within the same time period, six major communities consistently discussed police brutality on Twitter: 1) Anonymous/Bipartisan Report, 2) Black Entertainers, 3) Conservatives,
4) Mainstream News, 5) Young Black Twitter, and of considerable note, 6) the Black Lives Matters movement (Freelon, McIlwain, & Clark, 2016.)

**The BLM movement.** The #BlackLivesMatter (BLM) movement and its activity on social media sites have significantly influenced the extent to which young adult African Americans social media users are exposed to and discuss racist events and/or news (Cobb, 2016; Freelon, McIlwain, & Clark, 2016). Considered to be this generation’s civil rights group, BLM and its participants (i.e., social media users and protesters) have fanned the flames of racial discussions on social media by launching hashtag campaigns and saturating Facebook newsfeeds with video posts of police brutality and misconduct ([http://blacklivesmatter.com](http://blacklivesmatter.com)) (Cobb, 2016).

In many ways, the BLM movement has designated social media platforms as the political battlegrounds for their war against police brutality and racial profiling, a tactic that has proven to pay dividends (Cammaerts, 2015). By replacing the traditional organization hubs of the 1960’s civil rights movement (e.g., churches, schools, and private homes) with SNSs, the BLM movement not only takes advantage of the anonymity the Internet provides (Fuchs, 2014), but it also allows protest leaders to organize and reach thousands without leaving their homes. Analyzing three types of data (i.e., 40.8 million tweets, over 100,000 web links, and 40 interviews of BLM activists and allies), Freelon, McIlwain, and Clark (2016) revealed the BLM movement successfully spread Michael Brown’s story nationally, educated casual observers on Twitter, and garnered support from multiple communities across the country.

To this effect, over the past three years, we have witnessed the birth and development of a new form of African American political activism—one that is contoured by the ever-shifting and growing trends of social media. It is a new form of political activism that views SNSs as the most effective and efficient locations to: a) recruit protest participants, b) disseminate
information about movement progress and needs, and c) achieve greater movement awareness through social media sharing and connecting (Cobb, 2016; Freelon, McIlwain, & Clark, 2016).

As illustrated by the comprehensive work of Freelon, McIlwain, and Clark (2016), the rise of the BLM movement has been revolutionary and potent. Notwithstanding, the effects of its presence as well as the overwhelming amount of race-related content and comments shared on social media platforms have yet to be sufficiently empirically understood.

![Fig 6. Screenshot of an exchange between two Facebook users about BLM](image)

**Research on perceptions of cyber racism.** Few studies have directly measured the influence of social media consumption on perceptions of cyber racism among young African Americans. Despite the fact that comments and statuses like those in Figure 6 are very common, only a few books and articles have addressed social media and race directly (McCosker & Johns, 2014; Schweitzer, 2014; Wilson, Gutierrez & Chao, 2012). Of note is Nakumura and Chow-White’s (2012) book, *Race After The Internet*, which is a well-crafted compilation of chapters penned by multidisciplinary authors that cover an array of topics related to the Internet and race relations. Some of these topics include race as a predictor of MySpace or Facebook usage among young adolescents, the effects of social media on racial differences in voting, racial differences in Internet usage and selection of social media platforms, and the import of social media user identification and classification to market use. Offering a review of diverse perspectives, *Race*
After The Internet contextualizes the extent to which race has been reconfigured, both successfully and unsuccessfully, to match the use, platforms, and complexities of contemporary forms of technology. Yet, with little presented empirical data directly related to African Americans’ emotional responses to social media use, many questions about the effects of cyber racism on this particular group are left unanswered.

Daniels’ (2013) succinct review of race and Internet studies has also added to our understanding of technology, race, and social interactions. Analyzing over 15 years of research, Daniels reveals that despite earlier attempts to designate the Internet a “race-free” space, people, especially minority groups, have used the Internet to construct and reaffirm a racial identity, and seek out communities with similar traits. He also notes that achieving these goals, however, can be difficult, as political struggles over racial meaning, knowledge, and values often occur online. As the reviewed studies have shown, the use of “other” as a racial category burdens, and at times, exiles some minority Internet users. Its inherent ambiguity problematizes the use of race as an identifier, and further, as a causal variable in technological research—as it is often measured matter-of-factly and without consideration of contextual information.

Daniels also highlights the fact that, on average, African Americans have lower access to computer equipment and service as compared to Whites, but are most likely to access SNSs via cell phone technology. Equally discussed are topics related to cyber racism within the sports world and American-Indians, online gaming and discrimination directed towards Asian-Americans, as well as the means by which racists use and view the Internet as a sanctuary for hate speech propagation. Though concise, Daniels’ review presents a thorough analysis of the merger of race and technology and the nature and effects of its byproducts.
In addressing manifestations of cyber racism, racial differences in Internet use, and the conceptualization of a digitalized racial concept, Daniels (2013), *Race After The Internet*, and other studies (Jenkins, 2002; Kevorkian, 2006; Kolko, Nakamura, & Rodman, 2000), have strengthened our knowledge of the intersection of technology and race. However, without the design and execution of empirical investigations, we are still unsure as to how frequent social media activity can influence perceptions of online racism among young African American adults. Insomuch as many of these works approach the subjects of race and internet use from perspectives of reviews and critiques, qualitative and/or quantitative studies are required to best capture if, and to what degree, exposure to racism on social media foments negative affective responses among young African American adults. Notwithstanding, there are select studies that have examined the effect of traditional media outlets on perceptions of fear and anxiety.

**Research on media and fear.** Although the proposed study will focus on the impact of contemporary social media platforms, research on the influence of conventional forms of media on public reactions to race-related police misconduct and media-generated fear is relevant. First, as police brutality against African Americans is highly publicized on social media platforms, it is likely that young African Americans that consume this form of media may become more anxious or afraid as a result of their exposure to and perceptions of these events. To this end, research on conventional media and fear could provide some insight into how fear generated from race-related social media content may also trigger anxiety and terror among minority groups.

Second, as other research suggests, people become afraid disproportionately to their object risk of victimization because they are influenced by the information they receive about crime through informal sources (Lane & Meeker, 2003; Nellis & Savage, 2012; Skogan & Maxfield, 1981; Tyler, 1980). To this effect, whereas young African Americans may not
experience race-based police brutality or discrimination individually, publicized content about these experiences shared by BLM affiliates or friends may indirectly influence how young African American adults perceive and emotionally respond to fear and discrimination. That is, social media platforms may be the “informal sources” young African Americans use to gauge racism in America. And as earlier studies on television viewing have shown, the influence of “informal sources of information” on fear can be significant (Skogan & Maxfield, 1981).

Moreover, as many social sites have visual layouts and newsfeed capabilities that mirror television viewing, understanding how television viewing potentially ignites fear could also prove useful in understanding the potential effects of sharing emotion-provoking news on social media. Oeldorf-Hirsch and Sundar (2015) already found in their comprehensive review that SNSs have an unprecedented ability to rapidly diffuse news content to the masses for information purposes, to organize, and to gain specific information from the “crowd”.

Dowler and Zawilski (2007) produced one of the more recent studies of television viewing and public reactions to police brutality. Conducting phone interviews with over 1,000 participants nationwide, they found that among minority participants, heavy consumers of network news were more likely to believe police misconduct was a frequent event. Additionally, minority participants that frequently viewed network news were more likely to believe that Whites received better treatment by police. Such research is important in that it recognizes the potential for race to interact with media consumption and produce differential reactions to police misconduct. However, as the participants were either categorized as “White” or “Non-Whites,” it is impossible to determine how African Americans specifically were affected by media use. In an earlier study, Chiricos, Escholz, and Gertz (1997) surveyed a Tallahassee, Florida community at the height of a media driven panic about violent crime. Results from analyses revealed television
viewing, not reading newspapers or news magazines, was related to fears. While this only occurred for white females between the ages of thirty and fifty-four, such findings are still relevant in that they provide further evidence that more contemporary forms of media generate greater responses to fear than more traditional ones.

More recently, Nellis and Savage (2012) examined the effects of terrorism-related news on the perceptions of a mixed sample of New York and Washington, D.C. residents. After conducting over 500 phone interviews, the authors found exposure to terrorism-related news was positively associated with perceived risk of terror to self and others as well as fear for others, but not of self. It would be interesting to see if high consumptions of social media, a current outlet for news stories about racially motivated terroristic acts, produces similar perceptions of group risk and fear. Prior research has already established that sharing news on social media can effectively diffuse diverse information to a wide range of news recipients (Hermida, Fletcher, Korell, & Logan, 2012).

Particularly relevant to the proposed study and the BLM movement, Jefferis, Kaminski, Holmes, and Hanley (1997) showed that a violent videotaped arrest in Cincinnati had a negative impact on citizens’ perception of force used by police during an arrest situation. However, the effect was substantially greater among non-Caucasians. Additionally, over a ten-year period, non-Caucasians were consistently more likely than Caucasians to believe police used force excessively. Given numerous violent police arrests are consistently posted and shared on social media (e.g., the arrests of Sandra Bland and Freddy Gray) (Cobb, 2016), ascertaining whether or not consumption of social media will illicit similar responses to those captured by the research reviewed is warranted.
In summary, there is a dearth of research that has directly measured how social media influences perceptions of racism and discrimination among young African American adults. Several books and articles have reviewed the potential effects of media on race relations, but more studies, driven by empirical data, and that purposively target perceptions of young African American adults, are necessary. Literature on conventional forms of media has already shown the potential for race-related news to incite fear among African Americans; however, as SNSs have replaced conventional media in both popularity and reach, studies must also adapt to and evaluate these changes. Perhaps we will see that similar to television viewing, SNSs have the ability to influence how young African Americans emotionally and physiologically respond to racism and race-related news viewed online. The need for this research is not only evidenced by the socio-political landscape of today and the emergence of the BLM movement, but it is also underscored by the wealth of studies that point to the maladaptive consequences of perceived racism: general stress, race-related stress, and anger expression. In the following sections, I will review this research further and explain its relevance to the current study.

**General stress and Race-Related Stress**

General stress is one of the most researched topics in social science literature. For over 60 years, researchers have examined stress, its management, and the psychosocial determinants of stress (Antonovsky, 1987; Briere, Agee, & Dietrich, 2016; Lazarus, 1966; Seyle, 1956; 1975). Though various studies have conceptualized stress differently (Day, 2005), the current study defines general stress as “a negative emotional experience accompanied by predictable biochemical, physiological, cognitive, and behavioral changes that are directed either toward altering the stressful event or accommodating to its effects” (Taylor, 2010, p. 139). While research has shown stressful events can be experienced at any moment, the experience of stress
is subjective, in that not every event will generate stress; it must first be appraised as stressful (Kemney, 2003).

According to Lazarus and Folkman’s Theory of Cognitive Appraisal (1984), stress appraisal involves two processes: 1) primary appraisal, and 2) secondary appraisal. The primary appraisal process is initiated when an individual first confronts an event, wherein they determine whether or not the event is positive, negative, or neutral. If the event is appraised as negative, it is then evaluated for its ability to either: a) harm (assessment of current damage), b) threaten (assessment of future damage), and/or c) challenge (the potential to overcome). Occurring simultaneously is the initiation of the secondary appraisal process. During this stage, individuals determine if they have the coping abilities or resources needed to meet the harm, threat, or challenge of the stressful event.

Ultimately, the experience of stress is dependent upon the balance between one’s primary and secondary appraisals of an event. Thus, if an event is appraised as harmful and threatening, with low coping capabilities, stress is experienced. According to Taylor (2010), negative responses to stress can be cognitive (e.g., distractibility), emotional (e.g., fear, anxiety, depression, and anger), and/or physiological (e.g., behavioral). In general, physiological responses are either categorized as: 1) a “fight” response, which involves confrontational action against the stressor, or 2) a “flight” response, which involves withdrawing from the threatening event (Cannon, 1932). In the latter sections to follow, I will more thoroughly discuss whereby these physiological responses affect the human body and influence health outcomes.

From Post Traumatic Stress Disorder (PTSD) (Horwitz, 1997; Egan, 2010) to its link to depression (Hammen, 2005), stress and associated cognitive, emotional, and physiological responses have been analyzed from varied angles and measured with different instrumentation.
The most frequently used scale for measuring stress is the Perceived Stress Scale (PSS) (Cohen, Kamarck, & Mermelstein, 1983), which was employed in the current study. Using the PSS, researchers have linked stress to smoking (Cohen, & Lichenstein, 1990; Robles et al, 2016), health disparities among minorities (Watson, Logan, & Tomar, 2008), and of particular relevance, racism (Pieterse & Carter, 2007). The PSS has also been used in studies of stress management (Bernstein et al, 2015; Michalopoulou, Tzamalouka, Chrousos, & Darviri, 2015), which have analyzed and evaluated novel techniques for regulating stress and managing negative affectivity associated with stress.

**Gender differences in stress.** Research on stress management has also highlighted the fact that stress can impact individuals differentially, in that not every individual will experience or appraise stress in the same way (Liang, Alvarez, Juang, & Liang, 2007). This is because certain factors can moderate stress appraisals, or in other words, influence the degree to which an event will be perceived as stressful (Dunn, Burbine, Bowers, & Tantleff-Dunn, 2001; Wilcox, 1981). One moderator of stress that has been frequently explored in the literature is gender, which has been found to generate significant differences in stress experiences (Barnett, Biener, & Baruch, 1987; Baum & Grunberg, 1991; Wilsey & Lyke, 2015). Of particular interest to researchers are the differential ways whereby men and women cope with stress.

Coping is defined as “constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that have been evaluated as taking up or exceeding the resources of a person” (Matud, 2004 p. 1403). It is used to either regulate emotions generated by stress, or to alter environmental factors causing distress (Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986). There are two types of coping: 1) problem-focused coping, where one
attempts to modify behavior or environmental factors to eliminate stress and 2) emotion-avoidance focused coping, where individuals attempt to regulate emotional responses elicited by stress (Thoits, 2001).

With regard to gender differences, most research has found women experience more stress than men (Lee et al., 2014; Stein & Nyamathi, 1998), and are more likely to utilize emotion/avoidance-focused coping strategies rather than problem-focused (Madhyastha, Latha, & Kamath; 2014; Ptacek, Smith, & Dodge, 1994; Tamres, Janicki, & Helgeson, 2002). For example, Matud (2004) examined over 2816 participants (Women: 1566; Men: 1250) and found women scored higher than men on chronic stress and minor daily stressors. Women were also more likely than men to employ emotional and avoidance coping styles, whereas men utilized problem-focused coping styles. Men listed relationship, finance, and work-related events as stressful, whereas women listed family and health-related events as stressful.

In addition to offering further support for gender differences in stress and coping, such findings built upon previous research on stress and coping differences among male and female college students. Employing a three-week longitudinal study design, Ptacek, Smith, and Zana (1992) also found men were more likely to use problem-focused coping strategies, whereas women were more likely to use emotion-focused coping strategies. Women were also more likely than men to seek social support. Brougham, Zali, Mendoza, and Miller (2009) found similar results in their analyses of college students. Administering a stress-assessment inventory and a stress and coping inventory, the authors found college women reported a higher overall level of stress and greater emotion-focused coping strategies than college men.

To explain gender differences in stress and coping, researchers have pointed to the impact of culture and socialization. In many societies men are socialized to use more active and
instrumental coping behaviors (i.e., seeking advice or information to deal with a stressful event), whereas women and girls are socialized to use more passive and emotion focused behaviors (e.g., getting moral support and sympathy when faced with a problem) (Ptacek et al, 1992).

Variations in lifestyles, which shape the experiences men and women encounter, may also attribute to divergent perceptions of stress, leading to women having more family and health related stressors, and men having more work related stressors (Matud, 2004). Sexist comments and experiences with sexism likely heighten stress among women as well. Pressures to conform to rigid beauty ideals (Perloff, 2014) or to perform as well as, or better than, men may contribute to higher stress among women (Madhyastha, Latham, & Kamath, 2014).

In the current study, gender differences in stress perceptions will be re-explored. While African American men and women are both likely to witness or engage in online discussions of racism or race-related topics on social media platforms, the way in which they appraise these topics or virally shared acts of discrimination may be different. Perhaps as the literature suggests, women may be more likely to experience general stress as a result of viewing online racism or posted content about race than men. Yet, as it will be discussed later, stress derived from experiences with or reactions to racism has been found to be more prevalent among African American men. Thus, results from the current study should assist in better understanding potential gender differences in general stress experienced through social media use and perceived racism.

**Race-related stress.** In addition to gender, studies on stress and coping have also focused on perceived racism, which have targeted African Americans in particular (Brondolo, ver Halen, Pencille, Beatty, & Contrada, 2009; Pieterse, Carter, & Ray, 2013; Stevenson, Reed, Bodison, and Bishop, 1997). This is because African Americans experience directly or vicariously
significant racism in their lifetimes, which, as the literature notes, generates stress that must be managed (Pieterse & Carter, 2007, Sellers, Copeland-Linder, Martin, & Lewis, 2006). In fact, the link between perceived racism and general stress is so strong, that researchers have conceptualized “race-related stress” as a unique and separate construct. Distinct from general stress, which, as the previously reviewed literature mentioned, can be a result of sexism or employment, race-related stress is specifically caused by or related to exposure to racial discrimination. Depending on the longevity and frequency of the events, both general stress and race-related stress are categorized as either acute, meaning short-term, or chronic, meaning long-term (Belgrave & Allison, 2010).

In the literature acute and chronic experiences with race-related stress have drawn significant attention, with sociologists examining their effects on group outcomes (e.g., in/out-group bias), and psychologists examining their effects on individual outcomes (e.g., mental wellbeing) (Belgrave & Allison, 2010; White & Parham, 1990). For hundreds of years, African Americans have endured racism and related psychological and physical discrimination on multiple societal levels (Harrell, 2000). According to Essed (1990), the prevalence and anticipation of racism in America is so acute for African Americans that many plan their daily lives around avoiding or defending against it. As one can imagine, preoccupation with averting or protecting oneself from racism can be stressful. Thus, race-related stressors are considered to be the result of transactions between individuals and their environment that are rooted in experiencing or actively circumventing racism (Outlaw, 1993).

Equally important to note is that African Americans’ stressful experiences with racism accumulate overtime, for “new encounters are interpreted on the basis of past experiences with racism, knowledge of others’ experiences with racism, and knowledge about the systemic nature
of racism” (Utsey & Ponterotto, 1996, p 490). With regard to the current study, knowledge of other’s experiences with racism, also known as network events, is particularly relevant. Coined by Kessler and McLeod (1984), network events are described as inducing stress from a stressful event experienced not by the respondent, but by someone intimately connected to the respondent through his or her social network (family and friends). As SNSs create digital and intimate networks for young African Americans adults where race-related topics are continuously shared, race-related stress among heavy African American SNS users may be significantly higher than those who use SNSs less frequently. According to Utsey et al (2013), “even if an individual never personally experiences a race-related event, learning about the experiences of others (vicarious, chronic-contextual, collective, and/or transgenerational) creates an awareness or expectation that he or she may encounter racism at any time” (p. 537).

**Measuring race-related stress.** In acknowledging the unique experiences race-related stress can produce, researchers have also worked to tease apart and measure these experiences distinctively from those generated by general stress. Among the first to put forth a psychometrically sound measure of race-related stress that was divergent from measures of general stress was Utsey and Ponterotto (1996). Borrowing from Lazarus and Folkman’s (1984) work on the daily-hassles concept of stress and the multidimensional conceptualization of every day racism (Essed, 1990), Utsey and Ponterotto used stringent procedures to develop, pilot, and validate The Index of Race-Related Stress (IRSS).

The development of the IRSS was a unique contribution to the literature, in that it directly measured the stress African Americans experience as a result of racism. This included assessing reactions to a) individual racism, experienced personally, b) institutional racism, experiences due to institutional discriminatory policies, c) cultural racism, experiences due to cultural practices of
racial biases, and d) collective racism, experiences due to organizational discrimination. Prior to the IRSS, other instruments only measured experiences with or reactions to racism, which neglected psychological and/or physical responses to racism (e.g., the Racial Discrimination Index, [RDI, Terrell & Miller, 1980], the Racism Reaction Scale [RRS; Thompson et al, 1990], the Perceived Racism Scale [PRS, McNeilly et al. 1996] and the Racism and Life Experiences Scales—Brief Version (RaLES-B; Harrell, 1994).

For some time, the IRSS and its abbreviated version, (The IRSS-Brief, Utsey, 1999) stood as two of the most reliable and consistently used measures of race-related stress (Utsey, 1998). With these instruments, researchers explored many health indices among African Americans that will be discussed later. Nonetheless, Utsey and colleagues would later work to better capture stressful experiences with racism by developing the Prolonged Activation and Anticipatory Race-Related Stress Scale (PARS) (Utsey et al, 2013). Use of the PARS is slightly more advantageous than the IRSS in that it is equipped to capture the length of stress arousal and the mechanisms by which prolonged activation of stress produces physiological reactions to racism. Moreover, the PARS gauges African Americans’ pre-responses to racism by capturing experiences with anticipatory stress, which is the “subjective experience of stress prior to actually encountering the stressor” (Utsey, et al, 2013, p. 537). As African Americans are socialized to be constantly aware of potential acts of racism, anticipatory stress is an important construct to consider among this group. Anticipatory stress is particularly relevant to the current study as increased exposure to racism via social media may heighten young African American adults’ perceptions of racism, and subsequently their anticipation of racism. The PARS is additionally beneficial in that it also captures physiological responses to impending encounters.
with racism, which is important to understanding the overall impact of racism on African Americans.

To this end, the PARS became one of the first validated measures of race-related stress to capture the prolonged activation and anticipatory response dimension of stress. In validating the measure, Utsey and colleagues conducted two separate studies whereby they 1) established preliminary evidence for the underlying factor structure of the PARS, which reduced the scale to 17 items 2) examined how well the PARS factor structure fit the data, its convergent validity and internal consistency, and 3) established preliminary evidence of the PARS test-retest reliability. After administering the 17-item PARS to 227 African Americans, the internal consistency of the scale was found to be adequate (subscales ranged from .70 to .85) and convergent validity was established. Because this scale was employed in the current study, more information regarding subscales and items are included in the methods section.

Taken together, the development of validated measures of race-related stress has added significantly to the literature. Moreover, they have enhanced our understanding of racism in America by allowing researchers to directly examine the relationships between race-related stress and other indicators of African American’s mental and physical well-being. Similar to general stress, acute and chronic race-related stress can have maladaptive socio-physiological consequences, which underscore the importance of exploring if and how increased social media consumption produces acute and chronic general and race-related stress among young African American adults. But before I review those adverse health outcomes specifically, I will use the following sections to discuss how appraisals of general and race-related stress generate physiological responses in the human body.
Physiological responses to acute general and race-related stress. According to Lazarus and Folkman’s (1984) stress appraisal model, discriminatory events must first be appraised as stressful in order to generate a stressful physiological and/or psychological response (Lazarus & Folkman, 1984). Physiologically, the body activates two interrelated systems within the Sympathetic Nervous System (SNS): 1) the sympathetic adrenomedullary (SAM), and 2) the hypothalamic-pituitary-adrenocortical (HPA) axis. Activation of the SNS is commonly referred to as the “fight or flight response” (Cannon, 1939). When stress is experienced, the SNS seeks to mobilize the body’s resources so as to provide energy to cope with the stressful encounter (Kemeny, 2007). To do so, it calls upon the SAM axis to activate the medulla of the adrenal glands, which releases two forms of catecholamines: epinephrine (EP) and norepinephrine (NE). The result of the release of these catecholamines is increased blood flow and pressure, elevated heart rate, increased sweating, and constriction of peripheral blood vessels—all of which assist the body in either “fighting” or “fleeing”. Additionally, the HPA axis is activated, which stimulates the hypothalamus to release corticotrophin-releasing hormone (CRH), which incites the pituitary gland to secrete adrenocorticotropic hormone (ACTH), which, in turn, stimulates the release of glucocorticoids. Principal among these glucocorticoids is cortisol, which is responsible for conserving storages of carbohydrates (energy food), reducing inflammation, and assisting the body in returning to homeostasis (steady state).

Physiological responses to chronic general and race-related stress. Repeated activation of the SNS in response to chronic or reoccurring acute general and race-related stress may lead to the deterioration of the body’s regulatory systems. This is because incessant exposure to or perceptions of racism may cause overactivation of the SAM and HPA axis, and subsequent overuse of mental and physical coping resources. The result is labeled allostatic load.
Conceptualized by McEwen (1998), allostatic load is associated with four types of situations: 1) recurrent exposure to stressors, 2) inability to adapt to frequent stressors, 3) inefficiency to end stress response after a stressor is removed, and 4) inadequate responses to stress (McEwen, 1998). Most pertinent to our discussion of race-related stress is the fact that allostatic load is characterized by the potential for physiological dysregulation to manifest in weakened cardiovascular and immune functioning (McEwen, 1998) and disease promotion (McEwen & Seeman, 1999). That is, experiences with allostatic load are believed to compromise one’s physical health. Grounded by this assumption, much of the research on chronic general and race-related stress among African Americans has centered on the potential for allostatic load to negatively affect their mental and physical health.

**General stress and health outcomes.** Long-term experiences with general stress can have a debilitating effect on human mental and physical development. Chronic release of glucocorticoids can cause changes to important brain structures related to memory, emotions, and neurodevelopmental functioning (Lupien, McEwen, Gunnar, & Heim, 2009). Research on pre-natal maternal stress shows heightened levels of glucocorticoids are linked to lower birth weight and smaller size of the baby (Glover, 1997). Exposure to prenatal stress can also affect adult behavior, including learning impairments (Vallee, 1999), enhanced sensitivity to drug abuse (Piazza, & Le, 1996), and increases in anxiety and depression related behaviors (Lupien et al, 2009). High allostatic load, or reduced allostasis, has been shown to predict mortality, incidence of cardiovascular disease, and decline in cognitive and physical functioning (Seeman, Rowe, McEwen, & Singer, 2001; Seeman, Singer, Rowe, Horwitz, & McEwen, 1997). Insomuch as these maladaptive health outcomes can negatively affect one’s quality of life (e.g., lead to excessive health expenditures for chronic disease management, limit mobility, and generate
dysfunctional beliefs, Taylor, 2010), research on the potential for increased social media use to produce general stress among young African American adults has important health implications.

Stress and the effect it can have on immune functioning have also been significantly reviewed in the literature (Pruett, 2003). For example, Kiecolt-Glaser, Glaser, Gravenstein, Malarkey, and Sheridan (1996) conducted an experiment to determine whether a chronic stressor (i.e., caregiving for a spouse with a progressive dementia) would impair immune response to influenza virus vaccinations. Controlling for sex, age, and SES, the authors compared the immunological responses of 32 caregivers to those of a control group. Results revealed caregivers showed poorer antibody responses than participants in the control group. Moreover, caregivers had lower levels of in vitro virus-specific-induced interleukin 2 levels and interleukin 1β, which suggested to the authors that down-regulation of the immune response to influenza virus vaccination is associated with a chronic stressor in the elderly. Similar findings were also revealed in an earlier study of elders, which focused on dementia and emotional distress (Vedhara et al, 1994).

Also examining the ability of stress to compromise immune functioning, Cohen and colleagues (1999) measured the stress levels of a group of participants they infected with the influenza virus. Taking note of respiratory symptoms, mucus produced, and interleukin-6 (a proinflammatory cytokine used by the immune system to counter stress), the authors found psychological stress led to more symptoms of illness and to increased production of interleukin-6 as compared to those exposed to the virus whose lives were less stressful. Other studies of plasmas neurotransmitters (Lechin et al, 1994), rheumatoid arthritis (Jacobs et al, 2001), lupus (Vasquez, Barzaga, and Cunha, 1992) and psoriasis (Farber & Null, 1993), also point to the undermining effect of stress on healthy immunological functioning. To the extent that stress can
undermine immunological functioning, understanding the extent to which social media use may heighten perceptions of stress is warranted.

Stressful life events in general have also been linked to illness. For example, inventories of stressful life events have been shown to predict who will get sick and for how long (Taylor, 2010). Relatedly, Iacovino, Bogdan, and Oltmanns (2015) found that in conjunction with personality traits (e.g., neuroticism, impulsivity, and agreeableness), stressful life events predicted new health problems in individuals (aged 55-64). Staniute, Brozaitiene, and Bunevicius (2013) also found evidence of the impact of stressful life events on the health of elders. Examining patients of coronary artery disease, the authors found among men and women, stressful life events were negatively correlated to physical functioning and mental health.

As alluded to earlier, stress can also influence maternal and child health. In a recent national longitudinal examination of 6900 mother-child dyads, women who reported stressful life events prior to conception had an increased risk of giving birth to a child significantly underweight, which in turn, predicted poor health at both 9 and 24 months of age (Cheng et al, 2016).

As evidenced by the above-mentioned literature, stressful life events can engender negative health outcomes in men and women. With regard to racism, while some studies classify experiences with racism as stressful life events and/or daily hassles (Thompson, 1996), others, as presented in the literature on race-related stress, have identified racism as a type of stress in and of itself. Because the proposed study will explore the potential for social media to increase perceptions of racism among young African American adults, exploring the health outcomes associated with this construct in particular is important.

**Race-related stress and health outcomes.** Research on stress activated by cumulative and comprehensive experiences with racism or perceived discrimination have linked it to many
health outcomes, including but not limited to decreased quality of life (Utsey, Chae, Brown, & Kelly, 2002), biological functioning (Clark, Anderson, Clark, & Williams, 1999), and self-esteem (Utsey, Ponterotto, Reynolds, & Cancelli, 2000). In fact, reviews of this literature have been extensive (Pieterse, Todd, Neville, & Carter, 2012; Pascoe & Richman, 2009). Across numerous studies researchers maintain that the continuing legacy of poor health among African Americans is the result of race-related discrimination and stress (Brondolo, Gallo, & Myers, 2009; Krieger et al, 2005; Mays, Cochran, & Barnes, 2007). Multiple illnesses and negative health outcomes have been linked to race-related stress including raised blood pressure and poorer self-rated health (Krieger & Sidney, 1996), smoking (Landrine & Klonoff, 2000), and low birth weight (Giscombé & Lobel, 2005).

Laboratory and ambulatory monitoring studies have also documented the relationship between race-related stress and psychophysiological reactivity, including cortisol levels, blood pressure, and heart responses (Brondolo et al. in press, 2008; Clark 2000; Fang and Myers 2001; Guyll et al. 2001; Harrell et al. 2003; McNeilly et al. 1995; Richman et al. 2007; Tull et al. 2005). More important, these patterns of reactivity have been associated with the development of stress-related disorders, such as hypertension and other cardiovascular diseases (Matthews et al. 2004; Treiber et al. 2003).

Recent studies on race-related stress have extended the research to examine other members of the Black diaspora. For example, Case and Hunter (2014) administered the IRSS to Black American and Black Caribbean immigrants to determine the relationship between identity importance and cultural race-related stress. While identity importance only predicted race-related stress in Black Americans, length of residence predicted race-related stress in Black Caribbean immigrants. Such results speak volumes about the degree to which people of African ancestry
are exposed to or experience racism in America. A following study would later explore if race-related stress among Black Caribbean immigrants is linked to depression. Collecting data from first- and second-generation immigrants (N=110), Hunter, Case, Joseph, Mekawi, and Bokhari (2016) found greater race-related stress was related to higher depression among this group. Also interested in the effects of American racism on mental health indicators, Lee, Enrique, Neblett Jr., and Jackson, (2015) administered the IRRS and other measures to 171 African American young adults. Results from their analyses revealed institutional racism in particular was positively related to cognitive and somatic anxiety.

Yet despite the voluminous amount of research on the negative consequences of race-related stress, some research, albeit limited, suggests there may be positive benefits. For example, in a recent study, Szymanski and Lewis (2015) found among a sample of 185 African American undergraduate women and men that cultural race-related stress (a subscale of the Index of Race Related Stress-Brief, Utsey, 1999) was a unique and significant predictor of involvement in African American activism. Such findings, which depart from prior and more traditional research on the subject, suggest race-related stress may have potential “benefits”. However, until more research in this area, especially on the effects of the growing BLM movement, is produced, claims of the beneficial properties of race-related stress are speculative at best.

Race-related stress has also been linked to sexual health outcomes. Stevens-Watkins, Brown-Wright, and Tyler (2010) administered the abbreviated version of the Index of Race-Related Stress (IRRS-B) and the Youth Risk Behavior Survey (YRBS) to 201 African American high school students. Results from their study suggested that among African American males, there were higher reports of race-related stress and number of sexual partners as compared to
African American females. However, after controlling for gender and age of first intercourse, race-related stress significantly predicted the number of sexual partners for both male and female students.

**Gender differences in race-related stress.** Most literature supports the idea that African American men are more likely than African American women to perceive racist events and appraise them as stressful (Klonoff & Ladrine, 2000; Seaton, Caldwell, Sellers, & Jackson, 2008). For example, Dolezsar, McGrath, Herzig, and Miller (2014) conducted a comprehensive review of over 44 articles on racial discrimination and hypertension. The authors not only showed perceived racial discrimination was associated with hypertensive status, but more notably, gender (specifically being male) moderated this relationship. Similarly, Pieterse and Carter (2007) found among Black men that when general stressed was controlled for, racism-related stress predicted an additional 4% of the variance in psychological distress for working class men and an additional 7% for middle-upper class men.

More recently, Assari, Watkins, and Caldwell (2014) found Caribbean Black men were more likely to believe race is a major barrier against one’s own upward social mobility. This increased perception of racism was additionally found to moderate the relationship between perceived discrimination and major depressive disorder. Increased perceptions of racism among African Americans males also appears to occur cross generationally. Focusing on the perceptions of young African American male adolescents, Fields (2014) found cultural race-related stress, and individual race-related stress leads to increased use of emotion-based coping behaviors and decreased implementation of avoidant-focused and task-related coping behaviors. Brody and colleagues (2006) relatedly found increases in perceptions of discrimination were associated with increased conduct problems and depressive symptoms among adolescents. For conduct
problems, the association was stronger for boys than for girls. However, no gender differences emerged for depressive symptoms.

Research on perceived racism among African American women has also highlighted the development of maladaptive coping behaviors and negative health outcomes. For example, Carr, Szymanski, Taha, West, and Kaslow (2012) revealed that coping with oppressive events via internalization (self-silencing or avoidance) mediated the relationship between racist events and depression among African American women, but not the relationship between gendered racism and depression. Additionally, the authors found racist events to have a unique and direct effect on women’s well-being.

Carter and Reynolds (2011), contrary to most findings, found Black women are more likely to experience institutional and cultural racism than Black men. Such results bolstered the earlier research of Clark (2000), who found African American women perceive racism at least 75 times/year. She also went on to note that an overwhelming number of participants used active and passive coping responses to deal with racism. Among those psychological responses to racism, anger expression was most popular. Jones, Cross Jr., and DeFour (2007) found that African American and Caribbean women that had multicultural identity attitudes one standard deviation below the mean were less protected against racist stress appraisals and depression than those with less prominent racial identity attitudes. Finally, Kwate, Heiddis, Valdimarsdottir, Guevarra, and Bovbjerg (2008) found that among Black women who consume tobacco and alcohol, past year experiences with racism were negatively related to perceived health, and positively related to lifetime history of physical disease and frequency of recent common colds. Results further indicated that income and education were not related to experiences of racism, which suggests participants from variant backgrounds share experiences with racism.
In sum, most research supports the notion that African Americans with increased chronic general and race-related stress are at greater risk of developing negative mental and physical health problems. Across a wealth of studies, and seen in multiple reviews, general and race-related stress have been shown to influence the cardiovascular health, quality of life, and self-esteem of African Americans. Additionally, while mixed evidence exists, most literature points to gender differences in perceptions of race-related stress, with males experiencing more race-related stress than females. As noted by Clark (2000), one of the most associated responses to perceived racism, along with general and race-related stress, is anger expression. In the following section, I will explore this construct more thoroughly.

Anger Expression

Over the past three decades, social scientists have also pondered about and explored the “rage” James Baldwin believed African Americans carry as a result of their “consciousness” or awareness of racial discrimination (Berkowitz, 1990; Borders & Liang, 2011; Mabry & Kiecolt, 2005). In earlier research, Willis (1995) re-posed Baldwin’s claim and contended that African Americans are in a perpetual state of rage due to denied educational and employment opportunities, bigotry, racism, and the dilapidated living conditions of urban African American neighborhoods and communities. Audre Lorde and bell hooks have also spoke about the rage that Black women specifically experience. In her 1984 piece, Lorde writes, “Every Black woman in American lives her life somewhere along a wide curve of ancient and unexpressed angers. My Black woman’s anger is a molten pond at the core of me, my most fiercely guarded secret.” As this quote and other anecdotal accounts elucidate (Feagin, 2000), anger is a natural and often experienced response to racism in America. Defined as the emotional component of hostility that is either expressed outwardly or suppressed (Fields et al, 1997), anger expression is considered to
be a normative and common reaction to perceived injustice. For example, examining diary
entries, Swim et al. (2003) found that 58% of participants experienced anger in relation to racism
experiences. Relatedly, Carter and Forsyth (2010) found that anger was the second most
common reaction to discrimination among African Americans after feeling disrespected.

**Anger expression and health outcomes.** The importance of examining anger expression
and/or suppression lies in the fact that it has been linked to numerous negative health outcomes
across various populations. Johnson and Broman (1987) examined data collected from 1,277
Black men and women through the National Survey of Black Americans. Their analyses revealed
higher numbers of health problems among adults that expressed high levels of anger when they
experienced a severe personal problem than adults who expressed low or moderate levels of
anger. Relatedly, Johnson and Green (1991) showed that African American male adolescents
who cope with stress and provocations with chronically high levels of suppressed anger have
significantly fewer close friends and family members to talk to about their personal problems.
Additionally, this lack of social support was associated with even more distress and intense
angry reactions. Specifically, adolescents who frequently held in angry feelings reported
cardiovascular arousal, sleep disturbances, and stressful life events. Further, adolescents with
high levels of suppressed anger were heavier than those who were lower in suppressed anger.

Focusing on adults, Finney, Stoney, and Engebretson (2002) examined between-ethnic-
group-differences in hostility, anger expression, cardiovascular reactivity and lipid reactivity
among African Americans and European Americans. They found African Americans low in
cynical hostility had greater blood pressure reactivity to the stressor. This effect appeared to be
due primarily to low cynical men with higher anger in than anger out. Independent of ethnicity,
those with a general tendency to either always express or always inhibit the expression of anger
had higher triglyceride reactivity, relative to those with a more flexible style of anger expression. Also examining ethnic differences, Magai, Kerns, Gillespie, and Huang (2003) explored the link between anger experience, anger inhibition, and circulatory disease (CD) among African American, African Caribbean, Eastern European, and European American adults. Similar to the previous study, findings revealed that anger and anger inhibition were only significant predictors for the African American group, and the relation between experienced anger and CD was mediated by anger inhibition.

Pertinent to the current study, negative consequences of anger expression have also been found among college students. For example, Armstead, Lawler, Gorden, Cross, and Gibbons (1989) found that presentations of racist situations involving Blacks incited anger expression among 27 Black college students. In a subsequent study that examined the perceived stress, trait anger, modes of anger expression, and health status of 720 college men and women, Thomas and Williams (1991) found that although stress was significantly correlated with trait anger and all four modes of anger expression, most correlations were only slightly significant. College men and women did not differ in trait anger, anger-in, or anger-out; however, significant gender differences were found in two modes of anger expression (discussing anger and expressing it somatically), in which women scored higher on both.

Gendered examinations of anger expression have also supplemented literature on the subject. Inspired by the writings of Audre Lorde and bell hooks, Fields and colleagues (1991) performed an existential investigation of the daily anger experienced by nine African American women in the South. Echoing the sentiments of Lorde’s earlier mentioned quote, women described anger in three primary ways: 1) in the context of power, whereby authoritative power generated anger, 2) in the context of control, whereby anger control was difficult to manage, and
3) in the context of respect, whereby disrespect incited anger. More than ten years later, Benkert and Peters (2005) conducted another qualitative study that examined African American women’s perceptions of prejudice in health care and strategies used to cope with the experience. In addition to learning to unlearn, walking away, and being assertive, similar to the women in the Fields et al. (1991) study, women described “getting angry” as a coping strategy for the prejudice they perceived.

The most recent examinations of anger expression are especially relevant to the proposed study. Pittman (2011) analyzed secondary data and found anger use to cope with racial discrimination negatively affected the general well-being and psychological distress of African Americans. Blackmon and Thomas (2015) took the discussion of anger expression among African Americans further by noting African Americans responses to the death of Trayvon Martin. Categorizing participants along their racial identity attitudes, the authors found that individuals with a race-focused Black racial identity cluster profile specifically reported higher levels of anger and were more likely to indicate feeling unsafe after learning about Trayvon Martin’s death. These findings, which highlight the importance of racial identification to perceptions of racism, also shed light onto the potential for race-related news to affect the emotional stability and anger expression of African Americans. As SNSs have become a primary source for news, these studies give some indication of how social media via the sharing of race-related news may facilitate anger expression among young African American adults.

Although research on social media and anger expression has not targeted African Americans directly, studies of anger and other groups give an indication of how African Americans may be affected. For example, Martin, Coyier, VanSistine, and Schroeder (2013) created rant site that mirrors the ranting that occurs on SNSs to assess responses to online anger.
Logging into this site daily, participants were asked to express their feelings about ranting and reading angry rants. Analyses revealed that while some participants felt more relaxed immediately after posting, they also experienced more anger than most and expressed their anger in maladaptive ways. Additionally, reading and writing rants was linked to negative shifts in mood.

In sum, anger expression and suppression can lead to negative health outcomes among African American men and women. These outcomes include cardiovascular risk, sleep disturbances, and circulatory dysfunction. Because we understand anger expression has been a normative response to recent racial and highly publicized events (i.e., the Trayvon Martin killing), exploring if social media use heightens perceptions of racial events and/or increases anger expression among young African Americans is relevant. Moreover, as the literature has linked anger expression to negative health outcomes (e.g., hypertension) (Everson, Goldberg, Kaplan, Julkunen, & Salonen, 1998), there are significant health implications tied to this research. Anger and stress have been intricately linked to perceptions of racism. However, we are still unclear about the degree to which social media increases perceptions of racism among young African American adults, and subsequently engenders negative emotional and stress responses. Given the undeniable popularity of social media among this group, and the incessant sharing and discussions of race-related content and news online, reexamining the relations between perceived racism, anger expression, and stress through current media technology use is meritorious.

**Perceived Racism**

General stress, race-related stress, and anger expression are major consequences of perceived racism, and as previously mentioned, various factors can influence how African
Americans perceive racist events or experiences. But before I delve into how and why perceived racism may mediate the relationship between social media use and negative emotional and stress responses, a definition of racism in America is needed. Across multiple disciplines, racism has been examined, conceptualized, and defined differently (Belgrave & Allison, 2010). In the proposed study, Jones’ (1997) definition is used, which conceptualizes racism as the transformation of race prejudice through the exercise of power against a racial group perceived as inferior. This power is believed to operate at three distinct social levels: 1) individual, 2) institutional, and 3) cultural.

Whereas individual racism occurs when an individual assumes and rationalizes racial superiority over another racial group (racial prejudice), institutional racism occurs when policies and practices within governmental and non-governmental institutions and organizations are used to discriminate against one racial group and elevate another. To make this distinction clearer, an example of individual racism would be a working White man believing African American mothers are lazy welfare recipients, whereas an example of institutional racism would involve a lending institution denying a Black family a financial loan because they cannot provide over five years of stable employment (which can be more difficult for minority groups to achieve than Whites [Belgrave & Allison, 2010]). Cultural racism, on the other hand, is the assumed superiority of particular languages, cultural artifacts (e.g., music, writing, art), worldviews, and beliefs of one social group over those of another based on race. This would include the belief that rap/hip-hop music is inferior to classical music. Given the United States’ dark history of African enslavement, lynchings, Jim Crow laws, and police brutality, much of the research on individual, institutional, and cultural level racism—and the effects they have on the lives of minorities—has taken place in this country.
Research on perceived racism and its effects among African Americans. Interest in the cumulative toll perceptions of racism can have on the everyday lives and mental and physical wellbeing of African Americans has been readily observed in the literature for over 20 years (Belgrave & Allison, 2014). Similar to racism, perceived racism has also been operationalized differently. For the purposes of this study, perceived racism is defined as the report of exposure to racism and/or racial discrimination, the extent to which the event is experienced as stressful (Carter, 2007). Conceptually, perceived racism is different than “perceived discrimination”, which is defined as the negative actions and behaviors that are directed at a person or group because of their marginal social status (Jones & Carter, 1996). Throughout this paper, depending upon the referenced study, “perceived racism” and “perceived discrimination” will be used interchangeably.

Mental health outcomes of perceived racism. Among African Americans, studies of increased exposure to racist events have shown positive links to serious emotional and mental consequences (Bynum, Bernal- Delgado, Gottlieb, & Fisher, 2007, Simon et al., 2006; Whibeck, Hoyt, McMorris, Chen, & Stubben, 2001). As noted by Pieterse, Todd, Neville, and Carter (2012) in their meta-analytic review of 66 studies between 1996-2011, most researchers have found strong evidence of a positive association between perceived racism and psychological distress. In fact, over the past decade, multiple analytic reviews of perceived racism have been conducted (Pascoe & Richman, 2009; Krieger, 1999; Williams & Mohammed, 2009; Williams, Neighbors, & Jackson, 2003; Williams & Williams-Morris, 2000). Of those conducted, many have found positive associations between perceived racism and mental health outcomes (e.g., psychological well-being [Williams, Jackson, & Anderson, 1997], self-esteem [Rumbaut, 1994],
anxiety disorder [Kessler, Mickelson, & Williams, 1999] and anger [Williams & Mohammed, 2009]).

Notwithstanding, more current research continues to link perceived racism to a multitude of other mental health outcomes. For example, surveying 2,315 ethnic minority college students (age 18 to 30 years; 37% Black, 63% Latino) Brittian et al. (2015) found that perceived ethnic group discrimination was associated positively with depressive symptoms among students in both populations. Publishing similar findings, Chao, Mallinckrodt, and Wei (2012) found that among 1,555 African American men and women, perceived discrimination was associated with poorer academic outcomes (e.g., performance anxiety, adjustment to university), dating concerns, psychological/emotional issues (e.g., perfectionism, depression, suicide risk), and existential concerns. Walker, Salami, Carter, and Flowers (2014) followed up on the link between suicide risk and perceived discrimination and found that among 234 African American women and men, perceived discrimination was directly and indirectly associated with suicide ideation. Relatedly, Combs et al. (2006) found perceived racism predicted cultural mistrust and nonclinical paranoia among African American college students.

**Physical health outcomes of perceived racism.** Regarding physical health outcomes, perceived racism has also been linked to cardiovascular disease risk. For example, after asking working-class Black adults about their experiences with discrimination and whether or not they accepted or challenged any of the seven situations of racism they were presented, Krieger and Sidney (1996) measured their systolic blood pressure. Interestingly, among those that typically accepted unfair treatment and had experienced racial discrimination in none of the seven situations presented, their systolic pressure was 7 mm higher than the systolic pressure of those who reported that they challenged unfair treatment and experienced racial discrimination in one
or two of the situations. While the results appear puzzling, they may indicate that acceptance of unfair treatment may be more stressful than actually experiencing or confronting racism. Steffen, McNeilly, Anderson, and Sherwood (2003) also found a correlation between higher perceived racism and higher ambulatory blood pressure among African American men and women. Also adding to the literature on perceived racism and blood pressure, Brondolo, Rieppi, Kelly, and Gerin (2003) found experiences with racial discrimination heightened measures of blood pressure among Latinos and African Americans. Using ambulatory blood pressure (ABP) monitors and assessing lifetime experiences with ethnic discrimination with a social or interpersonal context, the authors found perceived racism was positively associated with nocturnal ABP even after controlling for personality factors and socioeconomic status. Although Barksdale, Farrug, and Harkness (2009) did not find a correlation between perceived racial discrimination and blood pressure of African Americans, Krieger et al (2013) found that among randomly selected Blacks (aged 35-64), those most highly exposed to racial discrimination were more likely to have adverse cardiovascular profiles.

**Effects of perceived racism on young adults and adolescents.** Evidence of the negative impact perceived racism can have on African Americans has also been found among younger populations. Studies of adolescents have shown perceptions of racism to adversely influence their career self-efficacy (Rollins & Valdez, 2006) and wellbeing (Harris-Britt, Valrie, & Kurtz-Costes, 2007; Priest, Paradies, Trenerry, Truong, Karlsen, & Kelly, 2013). For example, Liu, Bolland, Dick, Mustanski, and Kertes (2015) examined the effects of racial discrimination, community violence, and stressful life events on internalizing problems among African American youth from high poverty neighborhoods (N= 607; 293 boys). Results from their study revealed externalizing problems fully mediated racial discrimination found among boys and not
among girls. Gibbons and colleagues (2012) were also able to find effects of perceived racism among African American youth. Bolstering the results of prior research (Gibbons, Gerrad, Wills, & Brody, 2004; Gibbons et al., 2007), Gibbons and colleagues showed that among African American youth, experiences with discrimination (from age 10 years to age 18 years) were not only associated with reduced self-control, but they also predicted increased substance use. In a similar longitudinal study, Lambert, Herman, Bynum, and Ialongo surveyed 500 African American adolescents and found that experiences with racism were associated with low perceived academic control, which was also associated with increased depressive symptoms. Bridging the gap in the empirical literature on possible associations between perceived racism and children’s psychological well-being, Nybord and Curry (2003) found perceived racism was related to self-reported internalizing of depressive symptoms, lower self-concept, and higher levels of hopelessness. Trait anger also mediated the number of observed relations between perceived racism and behavioral symptoms.

**Perceived racism and the dependent variables of interest.** Prior research has already established relationships between perceived racism and the proposed study’s dependent variables of interest (i.e., general stress, race-related stress, and anger expression). In addition to the studies mentioned in the earlier sections, Taylor and Turner (2002) surveyed 5,924 high school students and found Black students reported higher levels of stress and more frequent exposure to discrimination than students of other ethnic groups. Such findings lend additional support for perceived racism as a generator of more stress for African Americans. Even the anticipation of being treated unfairly or experiencing racism can affect the stress levels of minorities (Kessler et al., 1999).
Other studies of perceived racism have also linked the variable with anger expression, another dependent variable of interest. For instance, Steffen, McNeilly, Anderson, and Sherwood (2003) examined the ambulatory blood pressure and anger expression of 69 African American men and women with normal or mildly elevated blood pressure. Results from this study indicated that greater perceived racism was positively correlated with anger inhibition, but was not related to outwardly expressed anger. Also examining anger and cardiovascular health, Clark (2006) found that among 234 high school Black students, an interaction between perceived racism and trait anger were predictive of systolic and diastolic blood pressure.

Yet, despite the existing research that has already linked perceived racism to general stress, race-related stress, and anger expression, none of these studies have examined these relationships in the context of social media use or with perceived racism as a mediating factor. In fact, a significant portion of the research on perceived racism has focused on those factors that generate differential interpretations of racist events—that is, those factors that moderate perceived racism.

**Moderators of perceived racism.** Due to the negative physiological and mental consequences associated with perceptions of racism, researchers have also been interested in identifying those factors or individual differences that may increase perceptions of racism. Although past research suggests that 60% or more of African American adults encounter racial discrimination (Kessler, Mickelson, & Williams, 1999), not every African American will perceive the same event as racist or subsequently experience a negative affect. Among those factors considered to exacerbate or reduce perceptions of racism are racial identity and group identification (Crocker & Major, 1989). A review of the literature shows individual differences in these measures appear to guide how African Americans interpret and respond to racist events.
For instance, Sellers and Shelton (2003) administered measures of racial identity, perceived racial discrimination, and psychological distress to 267 African American college students to determine if there were individual differences in experiences in perceived discrimination. Results from their study showed that those individuals higher in racial centrality—that is, being Black held significant meaning to them—were more likely to perceive racism than those who did not apply significant meaning to their race.

Similar findings were found in an earlier study. Operario and Fiske (2001) extended prior studies on the phenomenology of prejudice and perceived discrimination among African Americans by focusing on individual differences resulting from group identification. Their findings, in conjunction with those of Sellers and Shelton (2003), revealed ethnic identity to be a significant moderator of perceived discrimination and prejudice. Specifically, highly identified ethnic minorities reported more personal experiences with both subtle and overt forms of ethnic discrimination than those less identified as ethnic minorities. In fact, high identifiers were more sensitive to the subtle forms of prejudice than the overt forms, which low identifiers could only detect. Additionally, those high in ethnic identity were more likely to perceive themselves as targets of discrimination.

To explain why within-group differences in racial identity and group identification influence perceptions of racism, the authors of both studies point to the propensity for high racial/group identifiers to incorporate group identity into their self-concept. In doing so, these individuals are more likely to become vigilant for and reactive to subtle and overt cues of prejudice. To this end, given the research on the negative effects of perceived racism on health, it would seem, at first blush, that the increased perceptions of racism that high identifiers of racial identity and ethnic identification experience may cause them harm. However, this is not the case.
Other studies of within-group differences in racial/ethnic identity have not only examined how these factors influence perceived racism, but they have also examined how these factors moderate (in a protective way) the relationship between perceived racism and negative physical and mental consequences (e.g., depression [Banks & Kohn-Wood, 2007]; psychological well-being [Seaton, Neblett, Upton, Hammond, & Sellers, 2011]; and psychological functioning [Seller, Copeland-Linder, Martin, & Lewis, 2006]). While this research is informative, it is outside the scope of this study. For a succinct review see Neblett Jr., Rivas-Drake, and Umaña-Taylor, 2012.

Research on individual differences in perceptions of racism has also pointed to the influence of skin color and gender. For example, Klonoff & Ladrine (2000) found in their study of perceived discrimination that darker skin African Americans not only report greater experiences with racial discrimination than their lighter contemporaries, but they were also more likely to perceive these events as stressful. In terms of gender, as already noted in the race-related stress literature, whereas women have been found to be particularly sensitive to gendered racism, men normally report more experiences with racism and perceive these experiences as more stressful (Assari, Watkins, & Caldwell, 2014; Seaton, Caldwell, Seller, & Jackson, 2008). However, this research is not entirely conclusive. As mentioned earlier, perceived racism can highly affect women. Developmental stage also appears to influence perceptions of racism, with African American youth becoming more aware of racist events as they grow older. For instance, Greene, Way, and Pahl (2006) found that Black adolescents report a steeper increase over time in levels of perceived discrimination by peers and by adults than Puerto Rican adolescents. Thus, young adulthood may be a prime time to experience racism through social media.
In summary, perceived racism and discrimination have been linked to a variety of health and mental outcomes, including suicide ideation, career self-efficacy, anger expression, race-related stress, and general stress among African American women and men. Research on the subject has been vast, and several studies have highlighted the ability for racial identity and ethnic identity to influence perceptions of racism. However, because most studies examine perceived racism as an independent variable and not a mediator, the current study treats the variable in a novel way. Further, by examining the link between perceived racism and social media—a major platform for discussions of race and publications of racist events—the current study opened a new and important line of research on the variable. Further, the current study was grounded in established theories that adequately framed the purpose and aims of the research. In the section to follow, I will review these theories further, emphasizing their use in unpacking the influence of social media use on African American’s perceptions of racism and subsequent emotional and stress responses.

Theoretical Framework

Grounding theories. Two theories undergird and frame the purpose and goals of the current study.

The transactional model of stress and coping (TMSC). The primary theoretical framework of this study is the transactional model of stress and coping (TMSC) (Lazurus, 1966). TMSC highlights the mechanisms responsible for stress appraisals of discriminatory events and can help in framing the psychological influence of racism on the mental wellbeing of young African American adults.

In addition to describing routes of stress appraisal, the TMSC framework contends that stressful experiences are construed based on the impact of external stressors, which is mediated
by: 1) how one appraises an event as stressful and 2) the social and cultural resources at his or her disposal. In this sense, the current study purports that the popularity, reach, and cultural importance of social media influences how young African American adults appraise shared race-related content. Additionally, because racial posts are likely perceived as threatening, it is believed increased perceptions of racism via frequent social media use will activate and increase more appraisals of stress.

The cyclical nature of posting and sharing content also renders the TMSC an important theory to reference. Consistent exposure to racist content on social media may lead to increased perceptions of racism and more race-related stress. For example, many young African Americans may cope with the racism they see on social media by either “venting” in a cathartic way via their own personal posts or commenting on others’ posts. However, once these posts are viewed and responded to, the process of stress appraisal occurs again, for these comments generate more comments, and more responses, which perpetuates the cycle and activation of stress. Taken together, the potential stress young African Americans may experience as a result of increased social media use, greater exposure to race-related content, and the transactional nature of social posting makes the TMSC an important theory to apply to this study.

**Social identity theory.** The proposed study will also draw upon social identity theory (SIT), which posits one’s self-concept is partly defined by one’s group membership (Fiske, 2008). According to Tajfel (1981) and Tajfel and Turner (1979), because one’s salient group membership is inextricably linked to one’s personal identity, people are motivated to belong to and enhance their group. As a result, any threat to this social identity may also be interpreted as a threat to one’s self. It is in this sense that social identity theory supports the objective of the current study. As previously mentioned, social media use is a defining aspect of youth culture,
and in various ways, members of minority groups share a collective social identity with other minority group members on social media sites. This is most evidenced by the presence and activity of Black Twitter, as well as the research that has identified a collective Black digitalized identity online. To this effect, threats to the social online identity of African Americans via publicized content of racism and/or police brutality against African Americans may ultimately be perceived and experienced as a threat to one’s self. Thus, returning to the transactional model of stress and coping, social media use may increase appraisals of stress by exposing young African American adults to more threats to self (published race-related content). Such threats to the collective social identity of African Americans on SNSs are then hypothesized to induce anger expression and generate greater general and race-related stress.

**Current Study**

As detailed in the literature review, young African American adults are consuming social media at high rates and are using these technological and diffusive platforms to participate in online discussions of race and to share content about racism. The aim of the current study was to explore this phenomenon further by examining if and how social media use influences young African American adults’ perceptions of racism, and subsequent emotional and stress responses. Specifically, the goal of the current study was to explore the mediating effect of perceived racism on the relationships between social media use, general stress, race-related stress, and anger expression. In other words, the current study measured whether or not frequent social media consumption among young African American adults leads to more race-related stress, general stress, and anger expression by way of increased perceptions of racial discrimination. The model below illustrates the conceptual framework for this study.
Figure 7. Conceptual Pathway Model

Hypotheses

Guided by social identity theory and the transactional model for stress and coping, the following hypotheses were posited:

H1: Social media consumption will predict general stress, race-related stress, and anger expression.

Because of the growth of social media and the political power and visibility of the #BlackLivesMatters movement, young African American adults are inundated with race, racism, and police brutality (social resources) on social media. As a result, it was hypothesized that increased social media consumption would lead to more appraisals of general and race-related stress, and anger expression.
H2: Perceived racism and everyday discrimination will predict perceived general stress, race-related stress, and anger expression.

H3. Perceived racism and everyday discrimination will mediate the relationships between social media use and general stress, race-related stress, and anger expression.

H4: Gender will moderate the relationships between social media use and general stress, race-related stress, and anger expression such that men will report more general stress, race-related stress, and anger expression as a result of social media use than women.

This fourth hypothesis was driven by the research that suggests African American men perceive racism more and evaluate racist events as more stressful (Klonoff & Ladrine, 2000). Additionally, as most social media has focused on the shooting deaths of African American men rather than women (Clifton, 2015), young male African American adults may see the disproportionate male shootings as a threat to Black males in general. Thus, as suggested by social identity theory, the threat to Black males would lead young African American male adults to experience more general stress, race-related stress, and anger expression as result of social media use than young female African American adults.

*Figure 8. Conceptual Moderation Model*
Method

Overview

The current study was a cross-sectional study. African American males and females ranging in age from 18-29 completed an online survey using Amazon Mechanical Turk (M-Turk). The survey contained measures of variables that assessed the direct and indirect effects of perceived racism on the relationships between social media use, general stress, race-related stress, and anger expression. Additionally, the study explored the moderating effect of gender on these relationships. The Institutional Review Board at Virginia Commonwealth University approved the methods for the current study.

Recruitment. A national sample of participants was recruited from multiple locations across the U.S through M-Turk. M-Turk is an online marketplace for work and the completion of Human Intelligence Tasks (HITs). Several studies have used M-Turk as a valid method to recruit study participants (Mason & Suri, 2012; Paolacci, Chandler, & Ipeirotis, 2010). According to an evaluation conducted by Buhermester, Kwang, and Gosling (2011), M-Turk is a rapid and inexpensive recruiting tool that offers a more diverse sample of participants than typical American college samples, and data at least as reliable as those obtained via traditional methods.

M-Turk recruitment procedure. Recruitment via M-Turk relies on self-selection. To participate in a study, M-Turk workers, as they are called, log into M-Turk’s secured website with an ID and password. Once logged in, M-Turk workers browse a diverse list of HITs (e.g., research studies, data input tasks, etc.) uploaded by M-Turk requesters, that they can select to participate in. HITS can be viewed and filtered based on HIT compensation, alphabetical order of title, length of time for HIT completion, and HIT criteria requirements. The HIT for this study was described as, “a study seeking young adults to answer questions about social media use and
experiences with and reactions to discrimination.” The criteria for participation were at least a 98% approval rating (meaning at least 98% of past completed tasks were accepted rather than rejected) and at least 100 past hits completed. This criteria ensured that serious and somewhat experienced M-Turk workers completed the survey. It was also employed with the hope of screening out bots, computer generated programs that are designed to complete surveys. If a M-Turk worker met these criteria, and selected to participate in this study’s HIT, they were then sent to a more detailed description of the HIT. There they read the IRB-approved study descriptions and eligibility criteria (see below). Additionally, they were informed that all data would be kept confidential and completion of the study would take between 20-30 minutes. The following was presented on the study’s HIT page:

“Hello!! Thanks for your interest!!

The purpose of this study is to examine the relationships between social media use and experiences with and reactions to discrimination. The survey should only take about 20-30 minutes to complete. Please read all questions and instructions carefully.

Note that this survey is looking for a particular participant. This HIT is different than most of the HIT’s you will find on Mechanical Turk. We must ask some pre-screening questions in order to make sure you fit what we are looking for.

If you do not fit what we are looking for, you will be disqualified from participating, thus will NOT receive payment for this HIT.

If you qualify based on the pre-screening questions, you will receive $0.50 for completing this survey.

Make sure to leave this window open as you complete the survey. When you are finished, you will return to this page to paste the code into the box. If you provide an OLD code you will be rejected and your approval rate will be affected. Please ensure you are completing the survey entirely! Answers are also screened to ensure no bots are used!”
Procedure

If a participant agreed to participate in the study, he/she was directed via a link embedded in the HIT detailed description page to SurveyMonkey. Because this study qualified for exemption, consent was not required. Once on SurveyMonkey participants were asked to answer two inclusionary questions to ensure they met the study’s participant eligibility criteria. The first question asked, “How do you self identify?” and presented the following choices: a) African-American/Black b) White/Caucasian c) Hispanic/Latino d) Asian and e) Other. If participants selected “African-American,” they were sent to the second inclusionary question. All other responses directed the participant to the disqualification page, which thanked them for their interest and explained that they had been disqualified. The second inclusionary question asked, “How old are you?” Responses ranged from a) 12-17 b) 18-29 c) 30-45 d) 45-60 and e) Other. If the participant selected “18-29” they were directed to the beginning page of the study, while all other responses were directed to the disqualification page. If the M-Turk participant met the participant criteria, they read the following:

“Thank you for meeting our criteria!

You will be taking part in a study that is looking at social media use among young African Americans. You will also be asked your opinion about other events such as discrimination and your responses to such events.

This study should take approximately 20-30 minutes to complete. All of your answers will be kept completely confidential, and will not be linked in any way to any information that personally identifies you. Additionally, please keep in mind that there are no right or wrong answers to these items; please provide your honest response. You may stop participating at any time. If you have any questions prior to participating, please feel free to contact the researchers at fzbelgra@vcu.edu or maxwellml@vcu.edu

Let's begin the survey!”

Measures were presented in the order they appear in the survey (Appendix A). To ensure M-Turk workers did not skip survey questions to simply receive compensation, the survey was
configured so that a response had to be provided in order to move forward. While this forced respondents to answer all questions, they were often presented a “not applicable” (N/A) option. Moreover, they also had the option to terminate participation at any time if they were not comfortable with the style of questioning.

Once the participant completed the study, they were given a survey code to submit in order to receive compensation. The survey code was changed daily to identify and thwart repeat submissions. Submissions were rejected if: a) the survey code was incorrect, b) responses were incomprehensible, and c) if the submissions did not coincide with survey completions. Based on these criteria, eighty-eight M-Turk workers’ submissions were excluded. Once the survey was accepted, participants received .50 cents worth of Amazon bucks, which was administered by Amazon directly to M-Turk Workers’ accounts.

Participants

**Power analysis.** According to Cohen’s (1992) power analysis recommendations, a minimum of 102 participants were needed to conduct multiple regression analyses with 7 independent variables (including covariates) at power .80, with a medium effect size at $\alpha = .05$. One hundred ninety-nine African American women and men registered as M-Turk workers participated in the study.

**Exclusion and inclusion criteria.** The proposed study was interested in perceptions of African Americans, therefore, persons who did not identify as African American were excluded. The current study was also interested in social media use among young adults. Therefore an inclusionary age range of 18-29 was selected (Funsch, 2015). Thus, African-American men and women who were older than 29 and younger than 18 were excluded from participation in the study. Of the 199 participants that provided gender information, 41.1% (N=83) were men and
57.7% (N=116) were women.

**College/university status.** A majority of participants were enrolled as college/university students (n=125, 62.8%), whereas 37.2% were not (n= 74).

**College type.** Most participants reported that they were enrolled as students at a 4-year college or university (n=116, 58.3%). Around 6.5% reported enrollment at a 2-year community college (n=13) and 4.5% reported enrollment as an online university student (n=9). Around 31% selected “NA (Not Applicable” (N=61).

Participants also reported on the private or public school status of their college/university. Around 60% reported they attend a public university (n= 117), whereas 11.1% reported they attend a private university (n=22). Thirty percent selected “NA (Not Applicable” (N=60).

**Measures**

The dependent measures (general stress, race-related stress, and anger) will be discussed first, followed by a discussion of the independent, mediating, and demographic variables.

**Dependent Variables**

**General stress.** General stress was measured using the Perceived Stress Scale (PSS; Cohen, Kamarck, & Mermel-Stein, 1983). The PSS is a 14-item self-report measure designed to assess the degree to which individuals perceive their life as stressful. The PSS uses a Likert scale from 0 to 4, with a single PSS score computed by summing all of the items. Higher scores reflect higher perceptions of life stress, and lower scores reflect lower perceptions of stress. Scores on the PSS can range from 0 – 56. Psychometric data for the PSS have been found to be adequate, with internal consistency, as measured by Cronbach’s alpha, ranging from .84 to .86 (Cohen & Williamson, 1988). Andreou et al. (2011) found strong construct validity and internal
consistency (.82). The authors also established convergent validity with the Depression Anxiety and Stress scale. The alpha coefficient for the sample in this study was adequate at .73.

**Race-related stress.** The Prolonged Activation and Anticipatory Race-Related Stress Scale (PARS) was used to measure race-related stress (Utsey et al, 2013). PARS is a 17-item self-report measure of prolonged activation and anticipatory race-related stress responses in African Americans. It comprises four subscales that measure related factors of prolonged activation and the anticipatory stress response to race-related stressors: 1) perseverative cognition 2) anticipatory race-related stress 2) anticipatory bodily alarm response, and 4) secondary appraisal. Because frequent exposure to shared racist events or race-related comments on social media may increase young African Americans’ perceptions of racism, and thusly heighten anticipation of racism, the current study chose to employ two of the subscales: *Anticipatory Race-Related Stress Scale* (ARS) and *Anticipatory Bodily Alarm Response Scale* (ABARS). The *Anticipatory Race-Related Stress Scale* (ARS) consists of four items and measures the degree to which an individual cognitively anticipates future encounters with race-related stressors (e.g., “When I am around White people, I expect them to say something racist”). The *Anticipatory Bodily Alarm Response Scale* (ABARS) consists of four items and assesses the degree to which respondents have a physiological reaction to an anticipated encounter with race-related stressors (e.g., “I get chest pains whenever I think I am about to experience racism”). Respondents use a 7-point Likert-type scale (1 = *Strongly disagree* to 7 = *Strongly agree*) to indicate their response to the race-related stressor, with higher scores indicating a greater expectation that an individual will experience race-related stress or physiologically respond to impending encounters with racism in the future. Utsey et al (2013) found the alpha coefficients were .70 (95% CI = .64-.75) for the Anticipatory Race-Related Stress Scale and .83 (95% CI =
Anger expression. The State-Trait Anger Expression Inventory (STAXI)-II developed by Spielberger (1999) was used to measure anger expression. The STAXI-II conceptualizes and measures the expression of anger with 30 items consisting of four basic components: 1) anger in (AX/In), which refers to a person’s tendency to hold in or suppress angry feelings, 2) anger out (AX/Out), the tendency to direct angry feelings against other people or objects, 3) anger control (AX/Con) which is concerned with the extent to which the person attempts to control the expression of anger inwardly, and 4) anger control-out, which is concerned with the extent to which the person attempts to control the expression of anger outwardly. A summary anger expression scale (AX/EX), representing the overall extent to which a person tends to express anger, is computed as a linear combination of AX/In, AX/Out, AX/Con-In, and AX/Con-out (Spielberger, 1999). The STAXI-II uses a 4 point Likert scale ranging from 1= not at all to 4= very much so. A composite Anger Expression score is calculated by combining Anger-In, Anger-Out, and Anger Control scores generated from items 26-56, with higher scores indicating greater levels of overall anger expression.

The scale has been widely used to measure anger in college students and has been shown to have acceptable reliability, and validity (Culhane & Morea, 2010; Garcia-Leon et al., 2002). Wongtongkam, Ward, Day, and Winefield (2013) also showed high internal consistency (above .70), test-retest reliability, and validity. In the current study, the alpha coefficients for the STAXI-II Anger Expression subscale reached .85.
Independent Variables

**Frequency of social media use.** Three scales were employed to measure frequency of social media and use. The first scale, the *Frequency of Facebook and Twitter Use* scale was based on a scale developed and used in a dissertation involving 150 senior undergraduate communication students (Vishwanath, 2015). It was modified to include questions about Twitter, because Twitter is the second most popular social media platform among young African Americans (Duggan et al., 2015). The scale has six-items and uses a Likert response format that ranges from 1= *Not at all frequently* (maybe once a day or rarely) to 5= *Very frequently* (one or more times every hour). The following six scale items measured participants’ frequency of Facebook and Twitter use: 1) how often individuals check their Facebook accounts for updates from friends, 2) how often they update their own status each day, and 3) how often they use Facebook to communicate with others on a given day (using instant messaging, replying to posts, comments on walls, 4) how often individuals check their Twitter accounts for updates from friends, 5) how often they Tweet each day, and 6) how often they use Twitter to communicate with others on a given day (using direct messaging, retweeting, and such). The original Frequency of Facebook Use scale (Vishwanath, 2015) achieved an alpha reliability of 0.74; however, no other studies have provided information regarding the instrument’s validity. In the current study, the Facebook subscale had an alpha reliability of .85, the Twitter subscale had an alpha coefficient of .92, and combined the scale achieved a .86. The combined scale was used for analyses.

The Facebook Interactive Questionnaire (FIBQ) was also adapted for the study. The FIBQ is a 7-item scale that was originally designed to measure frequency of use of socially interactive features of Facebook, and non-social features (e.g., looking at others’ status updates). One item
captures the non-social features (e.g., I update my status/profile), while the other six items focus on interactive features (e.g., I send messages to friends, I post comments on friends’ status updates, pictures, etc.). Participants rated frequency of use on a seven-point Likert scale (1 = about once a month or less, 7 = many times per day). In previous studies, the internal consistency reliability of this measure was .86 (Fernandez et al., 2012; McCord, Rodebaugh, and Levinson, 2014). To date, no validity information is available for this measure. In the current study, the alpha coefficient for the scale was .94.

Three items assessed the number of social media sites participants use, the most popular, and the device most often used to engage these platforms. Participants chose from the following lists of sites: Twitter, Facebook, Instagram, LinkedIn, Snapchat, and Pinterest. They also indicated whether they accessed these platforms primarily from: 1) cellphones 2) computers/laptops, or 3) tablets.

**Mediating Variables**

**Perceived racism.** The 9-item Racism and Life Experiences Brief Scale (RaLES; S. P. Harrell, 1997) was used to assess experiences with racism and discrimination. The RaLES assesses how often a person has experienced racism or negative events associated with his or her race (e.g., “How often have you been ignored, overlooked, or not given service in a restaurant, store, etc.?”; “How often have you been treated rudely or disrespectfully because of your race?”). Participants respond to each item using a 5-point frequency scale (ranging from 0-4). A summary score was created by taking the mean of the nine items, with higher scores indicating more experiences with racism. Past coefficient alphas for the 9-item scale reached .88 (Lambert, Herman, Bynum, and Ialongo, 2009). Studies of the RaLES have found concurrent validity and internal consistency above .80 (Harrell, 2000; Sellers & Shelton, 2003; Utsey, 1998). In the
current study the alpha coefficient was .77.

The proposed study also administered a modified version of the Everyday Discrimination Scale (EDS) (Williams, Yu, Jackson, and Anderson, 1997). This 9-item scale asked participants how often Black people experience racism. While original items focus on the individual, “you” was replaced by “Black people” to assess participants’ general perceptions of racism that Black people collectively experience in America. For example, instead of “You are treated with less courtesy than other people are,” the item read, “Black people are treated with less courtesy than other people are.” Participants rate frequency of discrimination on a six-point Likert scale (1=never to 6=almost everyday). Kim, Sellbom, and Ford (2014) found an internal consistency for the EDS to be acceptable. The Cronbach’s $\alpha$ was .88. Krieger, Smith, Naishadham, Hartman, and Barbeau (2005) found a test-re-test reliability coefficient of .70. Structural equation modeling also demonstrated the EDS had the highest correlation ($r = 0.79$) with an underlying discrimination construct compared to other self-report discrimination measures employed. The current study found a high alpha coefficient, .97.

**Demographics variables.** Participants also completed demographics items, which assessed age, gender, college student status, type of college attended, and sexual orientation.

**Data Analysis Plan**

The Statistical Package of the Social Sciences (SPSS) 21.0 was used to generate an electronic data set and conduct all analyses. I entered the data into SPSS and verified the accuracy of the data by proofreading original participant questionnaires against the computerized data file (Tabachnick & Fidell, 2001).

**Multicollinearity.** Multicollinearity refers to high correlations among predictor variables. I checked for multicollinearity by computing a correlation table and examining the correlations
among my predictor variables. If predictor variables are highly correlated (correlations higher than .7, tolerance less than .10, and VIF greater than 10), centering is conducted to decrease the correlation and increase the interpretability of the findings (Aiken & West, 1991). Centering of predictor and moderator variables is recommended when testing interaction effects (Aiken & West, 1991; Darlington, 1990). Centering is complete when the mean score of a variable is subtracted from all scores (establishing a new mean of 0). This strategy does not alter the assessment of significance of a predictor variable (Garson, 2008). Centering was not conducted because the correlation matrix did not reveal high correlations among predictor variables.

**Outliers.** Outliers are data points that are far outside of the norm for a given variable or population. I checked for univariate outliers by checking the standardized values of each variable against suggested cutoff scores presented by Van Selst and Jolicoeur (1994). Upon examination, outliers were eliminated if they existed and were not used in analyses (Ghosh & Vogt, 2012).

**Normality.** Univariate and multivariate normality are assumptions of regression analyses. Univariate normality refers to data points for variables that are normally distributed according to the standard normal distribution. Univariate normality must be examined prior to examining multivariate normality. That is, the assumption that predictor variables have a linear relationship with dependent variables must be met. Both univariate and multivariate normality were assessed by eyeballing graphic representations of the data (e.g., histogram and to linear relationships (Tabachnick & Fidell, 2001). Upon observation of histograms, normality was achieved in the sample.

I also checked for skewness and kurtosis. Skewness refers to the symmetry of the distribution. A variable is skewed if the mean of the distribution is not at the center. Kurtosis
refers to the peakedness of the distribution, indicating a departure from normality. A variable is considered kurtotic if the distribution is too flat or too peaked. Depending on the type of regression analysis (e.g., simple regression, multiple regression, or hierarchical regression) univariate and/or multivariate normality were assessed (Tabachnick & Fidell, 2001). All variables except for general stress (Kurtosis= 4.07 SD= 5.94) met assumptions of normality. In order to correct for this, a log transformation was performed. However, as this skewed the data (Skewness= -3.020) and did not change the kurtosis, the original variable was used for subsequent analyses.

**Homoscedasticity.** Homoscedasticity assumes that variance for a continuous variable is about the same at all observations of another continuous variable. In other words, data points will be almost equally dispersed around the regression line. If homoscedasticity is violated, it suggests that other assumptions have also been violated (Mertler & Vannatta, 2005). In order to test homoscedasticity, I created a residual scatterplot for each predictor variable and to verify if the data points were approximately equal in width at all values of the dependent variable (Tabachnick & Fidell, 2001). The assumption of homoscedasticity was met for the dependent variables (i.e., perceived stress, state anger, trait anger, anger expression, or the subscales for the PARS), as assessed by my visual inspection of plots of standardized residuals versus unstandardized predicted values.

Demographic data, including age, gender, education level, sexual orientation, and employment status provided a detailed description of the sample. In addition, bivariate analyses were conducted to determine if any demographic variables (e.g., age, enrollment status, education level) correlated with the dependent variables: general stress, race-related stress, and
anger expression. A correlational matrix was generated to examine bivariate relationships among all variables.

**Hypothesis Testing: Multivariate Analyses**

This study sought to examine the relationships between social media use, perceived racism, general stress, race-related stress, and anger expression. Specifically, this investigation examined predictive, moderating, and mediating relationships. Simple linear regression and hierarchical multiple regression analyses were used to test each hypothesis. Data analysis plans for each hypothesis follow.

**Hypothesis 1: Social media consumption will predict general stress, race-related stress, and anger expression.** The original data analysis plan was to compute separate hierarchical multiple regressions with social media consumption (i.e., Facebook and Twitter use and Facebook interactive use) as predictor variables with covariates entered into the first step. However, education level, enrollment status, and gender were not significantly correlated with the dependent variables. Therefore, simple standard linear regression analyses were conducted to test if each type of social media consumption (i.e., Facebook and Twitter use and Facebook interactive use) predicted general stress, race-related, stress and anger expression. Each social media form was run separately because they were highly correlated (.70).

**Hypothesis 2: Perceived racism will predict perceived general stress, race-related stress, and anger expression.** In order to test the second hypothesis simple linear standard regression analyses were conducted to determine if perceived racism, measured by the RaLES and Everyday Discrimination scale (EDS), predicted any of the dependent variables of interest. Because education level, enrollment status, and gender were not correlated with the mediating variables they were not included as covariates.
Hypothesis 3: The relationship between social media use and general stress, race-related stress, and anger expression will be mediated by perceived racism. A mediator variable is a variable that explains the relationship between a predictor variable and the dependent variable (Baron & Kenny, 1986). In the current study, social media consumption (measured by Facebook interactive use and Facebook and Twitter use) was the predictor variable, perceived racism (as measured by the RaLES and Everyday Discrimination) were the mediating variables, and general stress, race-related stress (as measured by the Anticipatory Race-related Stress and Anticipator Bodily Alarm Response subscales of the PARS), and anger expression (STAXI-II) were the dependent variables.

Baron and Kenny (1986) recommend the following conditions must be met in order to test for mediation: (1) the predictor variable (X) must account for a significant amount of the variance in the dependent variable (Y), that is path $c$ ($X \rightarrow Y$, total effect) is significant (2) the predictor variable (X) must account for a significant amount of the variance of the mediator variable (M), that is path $a$ ($X \rightarrow M$, indirect effect) is significant (3) the mediator variable (M) must account for a significant amount of the variance in the dependent variable (Y), that is path $b$ ($M \rightarrow Y$, indirect effect) is significant and (4) when controlling for the mediator variable (M), the relationship between the predictor variable (X) and the dependent variable (Y) is not significant (or the significant level is reduced when there is partial mediation). That is, the coefficient for path $c'$ ($X \rightarrow Y$, after the addition of M to the model [the direct effect]) is reduced or no longer significant. Thus, according to Baron and Kenny (1986), the best way to determine a mediation effect is to analyze the difference between the regression coefficients and significance levels of the total effect ($c$) and direct effect ($c'$) pathways.
**New mediation technique.** Though Baron and Kenny’s mediation technique has been extensively used in psychological research, in the current study, I chose to use bootstrapping, which is a technique that is slightly different, but increasingly used to detect a mediation effect. In “Beyond Baron and Kenny: Statistical Mediation Analysis in the New Millennium,” Hayes (2009) believes the major flaw of Baron and Kenny’s mediation method is the need to establish a significant total effect. Typically, when there is no relationship between X and Y (total effect) researchers do not move forward with a mediation analysis. However, if there are still significant relationships between X and M (a) and M and Y (b), how does the researcher proceed?

According to Hayes (2009), ignoring these relationships simply because X and Y are not related is problematic. Therefore, Hayes (2012) recommends emphasizing and assessing indirect effects, which is the product of ab. Researchers have normally utilized a Sobel test (Sobel, 1986) to do so. However, this test can also lead to inaccurate interpretations, insomuch as it presumes the distribution of indirect effects is normal, when often times this is not the case (Preacher & Hayes, 2004). As a result, Hayes recommended that a technique called bootstrapping be used.

Bootstrapping is beneficial in that it does not require assumptions of distribution normality to be met.

**Bootstrapping.** Bootstrapping is accomplished by taking a large number of samples of size n (where n is the original sample size) from the data, sampling with replacements, and computing the indirect effect (ab) in each sample (Preacher & Hayes, 2008). The point estimate of ab is simply the mean ab computed over 1000 to 5000 times (Preacher & Hayes, 2004). The estimated standard error is the standard deviation of the 1000 ab estimates. With a 95% confidence interval, the 1000 to 5000 ab estimates are sorted from low to high. Thus, if a true
indirect effect is significant, it will be different from zero at $p < .05$, meaning the range of $ab$ estimates (confidence interval) will not include zero.

In the current study, bootstrapping was conducted for mediation analyses using PROCESS, a versatile modeling tool for SPSS that integrates many of the functions of existing and popular published statistical tools for mediation and moderation analyses (Hayes, 2012). The use of PROCESS presents significant advantages. For example, because PROCESS calculates direct estimates of the size of the indirect and direct effects of the predictor variable on the outcome variables, other outside tools—i.e., macros—do not have to be used. Moreover, PROCESS assesses mediation and indirect effects through bootstrapping, which, as described above, is a better way to test for mediation.

**Hypothesis 4: Gender will moderate the relationship between social media usage and general stress, race-related stress, and anger expression.** A moderator variable is a variable that impacts the strength and/or direction of the relationship between a predictor variable and an outcome variable. A “moderation implies that the causal relation between two variables changes as a function of the moderator variable” (p. 1174, Baron & Kenny, 1986). In the current study, social media use was the predictor variable, gender was the moderating variable, and general stress, race-related stress, and anger expression were the dependent variables.

The fourth hypothesis was tested by regression analyses in PROCESS. Regression analyses were computed to determine if the relationships between the predictor variable (as measured by Facebook interactive use and Facebook and Twitter use) and the outcome variables (i.e., anger expression measured by the subscales of the STAXI-II, general stress, and subscales of the PARS) are influenced by the moderating variable of gender (Nunally & Bernstein, 1994).
Social media use was entered in the first step; gender in the second step; and the third step included an interaction term (social media x gender). The result of this analysis revealed the estimation strength and direction changes in the dependent variables: general stress, race-related stress, and anger expression that are associated with changes in social media and gender.

**Results**

**Treatment of missing data.** With the use of M-Turk participants, SurveyMonkey was configured so that no item could be skipped. Although participants could terminate participation at any time, they could not skip items and receive compensation. As a result, there was no missing data for predictor or dependent variables.

**Descriptive Statistics for Demographic/Control Variables**

See Table I for a summary of descriptive statistics, including age, gender, education level, employment status, sexual orientation, and social media use.

**Gender.** Of the 199 participants that reported gender data, 41.7% (N=83) were men and 58.3% (N=116) were women.

**Sexuality.** Most participants identified as straight/heterosexual (89.9%, N=179). Around 5% identified as bisexual (N=10), 2.5% as gay/lesbian (N=5), 2% as unsure (N=4, and 1% as other (N=1).

**Age.** Participants ranged in age from 18-29. The mean age was 22.8 (SD= 3.48).

**Education level.** Most participants reported having some level of college education (n=79, 39.7%), while 30.2% reported having a Bachelor’s degree (n=60). Around 12% of participants had earned an associate’s degree (n=23), 3% had received technical or vocational training (n=6), 9.5% percent were high school graduates (n=19), and .5% had received less than
a high school diploma ($n=1$). Few participants had earned higher-level college degrees, 4.5% reported having a master’s degree ($n=9$) and 1% reported having a doctorate degree ($n=2$).

**Employment status.** Most participants had some form of employment, with 38.2% reporting full time employment ($n=76$), and 39.2% reporting part time employment ($n=78$). Around 12% were unemployed and looking ($n=24$), while around 10% were unemployed and not looking ($n=20$). Only 1% reported being a homemaker ($n=1$).

*Table 1.*

Descriptive Statistics on Demographic Variables

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
<th>Total Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>41.1% (N=83)</td>
<td>57.7% (N=116)</td>
<td>9.5% (N=199)</td>
</tr>
<tr>
<td>Age</td>
<td>M= 25.53 SD=3.25</td>
<td>M=21.53 SD=3.09</td>
<td>M= 22.8 SD= 3.48</td>
</tr>
<tr>
<td>Sexuality</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heterosexual</td>
<td>37.7% (N=75)</td>
<td>52.3% (N=104)</td>
<td>89.9% (N=179)</td>
</tr>
<tr>
<td>Bisexual</td>
<td>2% (N=4)</td>
<td>3% (N=6)</td>
<td>5% (N=10)</td>
</tr>
<tr>
<td>Gay/Lesbian</td>
<td>.5% (N=1)</td>
<td>2% (N=4)</td>
<td>2.5% (N=5)</td>
</tr>
<tr>
<td>Other</td>
<td>0% (N=0)</td>
<td>.5% (N=1)</td>
<td>1% (N=1)</td>
</tr>
<tr>
<td>Unsure</td>
<td>1.5% (N=3)</td>
<td>.5% (N=1)</td>
<td>2% (N=4)</td>
</tr>
<tr>
<td>Education Level</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than a high school diploma</td>
<td>.5% (N=1)</td>
<td>0% (N=0)</td>
<td>.5% (N=1)</td>
</tr>
<tr>
<td>High school diploma</td>
<td>2.5% (N=5)</td>
<td>7% (N=14)</td>
<td>9.5% (N=19)</td>
</tr>
<tr>
<td>Technical or vocal training</td>
<td>2% (N=4)</td>
<td>1% (N=2)</td>
<td>3% (N=6)</td>
</tr>
<tr>
<td>Some college</td>
<td>14.1% (N=28)</td>
<td>25.6% (N=51)</td>
<td>39.7% (N=79)</td>
</tr>
<tr>
<td>Associated degree</td>
<td>4.5% (N=9)</td>
<td>7% (N=14)</td>
<td>11.6% (N=23)</td>
</tr>
<tr>
<td>Bachelor’s degree</td>
<td>15.6% (N=31)</td>
<td>14.6% (N=29)</td>
<td>30.2% (N=60)</td>
</tr>
</tbody>
</table>
### Descriptive Statistics for Social Media

**Active and frequently used social media sites.** The average number of media sites participants were actively using was 2.95 (SD= 1.29). The most popular site was Facebook, with 52% (N=107) of participants identifying it as their most frequently used social networking site (SNS). Twenty-four percent use Snapchat most frequently, 21% (N=43) Twitter, 14% (N=29), Instagram, 3.5% Pinterest, and 3% LinkedIn. Figure 1. illustrates the most actively and frequently used SNSs.

Regarding gender differences, women appeared to be slightly more active social media users than men, as they represented 53.6% (N=90) of active Facebook users, 58.2% (N= 71) of active Twitter users, 66.7% (N=78) of active Instagram users, 79.8% (N=71) of active Snapchat, 46% (N=23) of active LinkedIn users, 82.5% (N=33) of active Pinterest users, and all of those participants that reported no social media use, (N=3). Men, on the other hand, comprised 41.8% (N=51) of active Facebook users, 41.8 (N=51) of active Twitter users, 33.3% (N=39) of active Instagram users, 33% (N=34) of active Snapchat, 27.8% (N=29) of active LinkedIn users, and 11.1% (N=3) of active Pinterest users.
active Instagram users, 20.2% (N=18) of active SnapChat users, 54% (N=27) of active LinkedIn users, and only 17.5% (N=7) of active Pinterest users. See Table 3.

Regarding most frequently used SNSs, around 43% (N=45) of women reported using Facebook most frequently, 52.4% (N=22) Twitter, 72.4% (N=21) Instagram, 85.7% (N=42) SnapChat, 50% (N=3) LinkedIn, 16.4% (N=6) Pinterest, and 100% of those that do not use social media (N=3). Over 56% (N=59) of men reported Facebook was their most frequently used SNS, 47.6% (N=20) Twitter, 27.6% (N=8) Instagram, 14.3% (N=7) SnapChat, 50% (N=3) LinkedIn, and 3.5% (N=1) Pinterest. Reference Table 4. Though women appeared to use some SNSs more frequently than men (i.e., SnapChat and Instagram), differences were slight and moreover, this was likely due to the greater number of women in the sample.

The most popular device used to access social media was cellular devices, with 68.8% (N=137) of participants identifying it as their preferred device for accessing social media platforms. Twenty-six percent (N=52) use their computers/laptops and 5% (N=10) use tablets/lpads.

**Facebook/Twitter frequency use scale.** The mean score for Facebook and Twitter use was 13.53 (SD= 7.24). As scores ranged from 0-30, the use of Facebook and Twitter was moderate.

**The Facebook interactive questionnaire (FBQ).** The mean score for the FBQ was 21.85 (SD= 12.38). As scores range from 0-49, the level of Facebook interactive use among participants was moderate.
Figure 9.

Most Frequently Used and Actively Used Social Media Sites

Table 2.

Active Use by Gender

<table>
<thead>
<tr>
<th></th>
<th>Facebook</th>
<th>Twitter</th>
<th>Instagram</th>
<th>SnapChat</th>
<th>LinkedIn</th>
<th>Pinterest</th>
<th>None</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>67.2% (N=78)</td>
<td>61.4% (N=51)</td>
<td>46.9% (N=39)</td>
<td>21.6% (N=18)</td>
<td>32% (N=27)</td>
<td>.08% (N=7)</td>
<td>0% (N=0)</td>
</tr>
<tr>
<td>Female</td>
<td>77.5% (N=90)</td>
<td>61.2% (N=71)</td>
<td>67.2% (N=78)</td>
<td>61.2% (N=71)</td>
<td>19.8% (N=23)</td>
<td>28% (N=33)</td>
<td>.02% (N=3)</td>
</tr>
<tr>
<td>Total</td>
<td>168</td>
<td>122</td>
<td>117</td>
<td>89</td>
<td>50</td>
<td>40</td>
<td>3</td>
</tr>
</tbody>
</table>
Table 3 Most Frequently Used Social Media Site by Gender

<table>
<thead>
<tr>
<th></th>
<th>Facebook</th>
<th>Twitter</th>
<th>Instagram</th>
<th>SnapChat</th>
<th>LinkedIn</th>
<th>Pinterest</th>
<th>None</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Male</strong></td>
<td>71%</td>
<td>24%</td>
<td>.09%</td>
<td>.08%</td>
<td>.04%</td>
<td>.01%</td>
<td>0%</td>
</tr>
<tr>
<td>(N=59)</td>
<td>(N=20)</td>
<td>(N=8)</td>
<td>(N=7)</td>
<td>(N=3)</td>
<td>(N=1)</td>
<td>(N=0)</td>
<td></td>
</tr>
<tr>
<td><strong>Female</strong></td>
<td>38.7%</td>
<td>18.9%</td>
<td>18.1%</td>
<td>36.2%</td>
<td>.02%</td>
<td>.05%</td>
<td>.02%</td>
</tr>
<tr>
<td>(N=45)</td>
<td>(N=22)</td>
<td>(N=21)</td>
<td>(N=42)</td>
<td>(N=3)</td>
<td>(N=6)</td>
<td>(N=3)</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>104</td>
<td>42</td>
<td>29</td>
<td>49</td>
<td>6</td>
<td>7</td>
<td>3</td>
</tr>
</tbody>
</table>

Descriptive Statistics for Dependent Variables.

**General stress.** Perceived Stress Scale was used to measure general stress (PSS; Cohen, Kamarck, & Mermelstein, 1983). Using a Likert scale from 0-4 with 14 items, scores on the PSS range from 0-56. The mean score for participants was 32.22 (SD=5.94), indicating a moderate level of perceived stress.

**Race-related stress.** Two sub-scales from the Prolonged Activation and Anticipatory Race-Related Stress Scale (PARS) was used) to measure experiences with and reactions to race-related stress (Utsey et al, 2013).

The Anticipatory Race-Related Stress sub-scale (ARS) measures the degree to which an individual anticipates future encounters with race-related stressors, with scores ranging from 7-28. The mean score for the ARS was 17.3 (SD=5.62), indicating moderate levels of anticipatory race-related stress among participants.

Anticipatory Bodily Alarm Response sub-scale (ABAR) measures respondents’ physiological responses to race-related stress, with scores ranging from 7-28. The mean score for the ABARS was 11.8, indicating relatively low levels of anticipatory bodily alarm responses.
Anger Expression. The mean score for Anger Expression was 39.32 (SD= 13.81). According to STAX-II index, scores at 39 fall in the 65% percentile, meaning participants exhibited moderately high levels of anger expression.

Descriptive Statistics for Mediating Variables

Perceived racism. The 9-item Racism and Life Experiences Brief Scale (RaLES; S. P. Harrell, 1997) was used to measure perceived racism. The mean score was 28.39 (SD= 12.10). Because scores range from 0-45, participants exhibited moderate levels of perceived racism.

Everyday discrimination scale (Williams, Yu, Jackson, and Anderson, 1997) was modified and measured perceptions of discrimination African Americans experience as a racial group. The mean score was 28.39 (SD= 12.10). Because scores range from 0-45, participants exhibited moderately high levels of perceptions of discrimination.

Table 4.

Means, Standard Deviations, and Ranges of Independent and Mediator Variables

<table>
<thead>
<tr>
<th>Variables (Measure)</th>
<th>Mean</th>
<th>SD</th>
<th>Item Range</th>
<th>Range Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facebook/Twitter Frequency</td>
<td>13.53</td>
<td>7.24</td>
<td>1-5</td>
<td>0-30</td>
</tr>
<tr>
<td>Facebook interactive use</td>
<td>21.85</td>
<td>12.38</td>
<td>1-7</td>
<td>0-49</td>
</tr>
<tr>
<td>General Stress (PSS)</td>
<td>32.22</td>
<td>5.94</td>
<td>0-4</td>
<td>7-56</td>
</tr>
<tr>
<td>Anger Expression (STAXI-II)</td>
<td>39.32</td>
<td>13.81</td>
<td>1-4</td>
<td>3-86</td>
</tr>
<tr>
<td>Anticipatory Bodily Alarm Response Scale (ABAR)</td>
<td>11.81</td>
<td>6.15</td>
<td>1-7</td>
<td>7-28</td>
</tr>
<tr>
<td>Anticipatory Race-related Stress Scale (ARS)</td>
<td>17.30</td>
<td>5.62</td>
<td>1-7</td>
<td>7-28</td>
</tr>
<tr>
<td>Perceived Racism (RaLES)</td>
<td>18.64</td>
<td>5.36</td>
<td>1-5</td>
<td>2-32</td>
</tr>
<tr>
<td>Everyday Discrimination (Modified)</td>
<td>28.39</td>
<td>12.10</td>
<td>0-5</td>
<td>0-45</td>
</tr>
</tbody>
</table>

Comparisons were made to see if there were any differences between men and women across the study variables. No differences were found between men and women in regards to
perceived racism, Facebook and Twitter use, any of the subscales of prolonged anticipatory race-related stress, or anger expression. However, there were significant differences in perceptions of everyday discrimination experienced by Black people as a racial group and Facebook interactive activity. Women (M= 31.14 SD= 11.84) were more likely than men (M= 24.53 SD=11.47) to perceive every day discrimination experienced by Black people, t(198)= 7.823, p < .001. Men (M= 26.31 SD=11.29), were more likely than women to engage in interactive Facebook activity, (M=18.92 SD= 12.27) t(198)= 10.048, p < .001.

Comparisons were also made to determine differences across those participants currently enrolled and not enrolled at a college or university. No differences were found between current students and non-students with regard to perceived racism, Facebook and Twitter use, prolonged activation and anticipation of race-related stress, anger expression, and everyday discrimination. However, non-college students (M= 26.13 SD= 12.28) were more likely to engage in interactive activity on Facebook than college students, (M= 19.34 SD=11.39) t(201)= 15.23, p < .001.

**Bivariate Correlations among Variables**

A correlational matrix was computed with all study variables. Facebook interactive use was correlated with Facebook and Twitter use, r = .704 p<.01, anger expression, r = .22 p<.05, anticipatory bodily alarm response, r = .371 p<.01, and perceived racism, r = .225 p<.01. Facebook and Twitter use was correlated with anger expression, r = .218 p<.01, anticipatory race-related stress, r = -.152 p<.01, anticipatory bodily alarm response, r = .328 p<.01, perceived racism, r = .151 p<.01, and everyday discrimination, r =-.189 p<.01. General stress was correlated with anticipatory race-related stress, r = .162 p<.05, perceived racism, r = .356 p<.01, and everyday discrimination, r =-.189 p<.01. Anger expression was correlated with anticipatory bodily alarm response, r = .302 p<.01 and perceived racism, r = .322 p<.01. Anticipatory race-
related stress was correlated with anticipatory bodily alarm response, $r = .311\ p < .01$, perceived racism, $r = .484\ p < .01$, and everyday discrimination, $r = .562\ p < .01$. Anticipatory bodily alarm response was correlated with perceived racism, $r = .390\ p < .01$. Finally, perceived racism was correlated with everyday discrimination, $r = .461\ p < .01$.

**Table 5.**
*Correlations among Predictor, Dependent, and Mediating Variables*

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facebook Interactive (1)</td>
<td>1</td>
<td>.704**</td>
<td>-.039</td>
<td>.22**</td>
<td>1.074</td>
<td>.371**</td>
<td>.225**</td>
<td>-.220**</td>
</tr>
<tr>
<td>Facebook Twitter (2)</td>
<td>1</td>
<td>.029</td>
<td>.218**</td>
<td>-.152**</td>
<td>.328**</td>
<td>.151**</td>
<td>-.189**</td>
<td></td>
</tr>
<tr>
<td>General Stress (3)</td>
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<td>-.125</td>
<td>.162**</td>
<td>.090</td>
<td>.356**</td>
<td>.352**</td>
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<td></td>
</tr>
<tr>
<td>Anger Expression (4)</td>
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<td>.083</td>
<td>.302**</td>
<td>.322**</td>
<td>-.042</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Anticipatory Race-Related Stress (5)</td>
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<td>.311**</td>
<td>.484**</td>
<td>.563**</td>
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<tr>
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<td>.390**</td>
<td>.098</td>
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<td>RaLES (7)</td>
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<td>.461**</td>
<td></td>
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<td>Everyday Discrimination (8)</td>
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*Correlation is significant at the .01 level (2-tailed)
*Correlation is significant at the .05 level (2-tailed)

Hypothesis 1: Social media consumption will predict general stress, race-related stress, and anger expression.

**Facebook Interactive Use**

**General stress, and race-related stress.** Facebook interactive use was entered as an independent variable to see if it predicted general stress, anger expression, anticipatory race-related stress, and anticipatory bodily alarm response. Facebook interactive use did not significantly predict general stress, $F(1,197) = .307\ p = .580$, $\beta = -.039\ t(197) = -.554,\ p = .580$. 

However, Facebook interactive use significantly accounted for 14% of the variance in Anticipatory Bodily Alarm Responses Scale (ABARS) with an adjusted $R^2 = 13.3\%$. The model significantly predicted ABARS $F(1,197)= 31.36 \ p<.001$, such that more interactive Facebook activity were significantly associated with increases in anticipatory bodily alarm responses $\beta = .186, t(197)= 5.6, p < .001$. But, Facebook interactive use did not significantly predict Anticipatory Race-Related Stress (ARS), $F(1,197)= 1.09 \ p=.297$, $\beta = -.074 \ t(197) = -1.045, \ p=.297$.

**Anger expression.** With regard to the STAXI-II, Facebook interactive use significantly accounted for 5% of the variance in anger expression with an adjusted $R^2 = 4.5\%$. The model significantly predicted anger expression $F(1,197)= 10.43 \ p<.001$, such that more interactive Facebook activity was significantly associated with increases in anger expression $\beta = .224, t(197) = 3.23, p < .001$.

**Facebook and Twitter Use**

**General stress and race-related stress.** The measure of Facebook and Twitter use was entered as an independent variable to determine if it predicted any of the dependent variables of interest. Analyses revealed Facebook and Twitter use did not significantly predict general stress, $F(1,197)= .164 \ p=.686$, $\beta = .029 \ t(197) = .405, \ p=.686$. However, Facebook and Twitter use significantly accounted for 2% of the variance in anticipatory race-related stress (ARS), with an adjusted $R^2 = 1.8\%$. The model significantly predicted ARS, $F(1,197)= 4.64 \ p<.05$, such that more Facebook and Twitter use were significantly associated with decreases in ARS, $\beta = -.152, t(198) = -2.15, p < .05$. Facebook and Twitter use also accounted for 11% of the variance in anticipatory bodily alarm response (ABARS), with an adjusted $R^2 = 10\%$. The model significantly predicted ABARS $F(1,197)= 23.75 \ p<.001$, such that more Facebook and Twitter
use were associated with increases in anticipatory bodily alarm responses $\beta = .328, t(197) = 4.87, p < .001$.

**Anger expression.** Regarding the STAX-II, Facebook and Twitter use also accounted for 5% of the variance in anger expression, with an adjusted $R^2 = 4.3\%$. The model significantly predicted anger expression $F(1,197) = 9.84 p<.002$, such that more Facebook and Twitter use was significantly associated with increases in anger expression $\beta = .218, t(197) = 3.14, p < .002$.

In sum, there was partial support for hypothesis 1. Facebook interactive use significantly predicted anticipatory bodily alarm response and anger expression. However, Facebook interactive use did not predict general stress or anticipatory race-related stress. Facebook and Twitter use significantly predicted anticipatory race-related stress, anticipatory bodily alarm response, and anger expression. However, Facebook and Twitter use did not significantly predict general stress.

**Hypothesis 2: Perceived racism and everyday discrimination will predict perceived general stress, race-related stress, and anger expression.**

**Perceived Racism (RaLES)**

**General stress and race-related stress.** After entering perceived racism measured by RaLES as an independent variable, analyses revealed perceived racism accounted for 13% of the variance in general stress with an adjusted $R^2 = 12.2\%$. The model significantly predicted general stress $F(1,197)= 28.63 p<.001$, such that more perceived racism significantly predicted increases in general stress $\beta = .356, t(197)= 5.35, p < .001$. For the race-related stress scale (PARS), perceived racism also accounted for 23.4% of the variance in anticipatory race-related stress (ARS) with an adjusted $R^2 = 23\%$. The model significantly predicted ARS, $F(1,197)= 60.24 p<.001$, such that more perceived racism significantly predicted increases in ARS, $\beta = .484$, etc.
Finally, perceived racism also accounted for 15.2% of the variance in anticipatory bodily alarm responses (ABARS) with an adjusted $R^2 = 14.8\%$. The model significantly predicted ABARS $F(1,197) = 35.40$ $p<.001$, such that more perceived racism significantly predicted increases in ABARS, $\beta = .390$, $t(197) = 5.95$, $p < .001$.

**Anger expression.** Perceived racism also accounted for 10.4% of the variance in anger expression with an adjusted $R^2 = 10\%$. The model significantly predicted anger expression $F(1,197) = 22.84$ $p<.001$, such that more perceived racism significantly predicted increases in anger expression, $\beta = .322$, $t(197) = 4.78$ $p < .001$.

**Everyday Discrimination**

**General stress and race-related stress.** Perceptions of everyday discrimination were also assessed as a predictor variable of the dependent variables of interest. Analyses revealed that perceptions of everyday discrimination accounted for 12.4% of the variance in general stress with an adjusted $R^2 = 12.0\%$. The model significantly predicted general stress $F(1,197) = 27.9$ $p<.001$, such that more perceived racism significantly predicted increases in general stress $\beta = .352$, $t(197) = 5.30$, $p < .001$. For the PARS, perceptions of everyday discrimination accounted for 31.6% of the variance in anticipatory race-related stress (ARS) with an adjusted $R^2 = 31.3\%$. The model significantly predicted ARS $F(1,197) = 91.04$ $p<.001$, such that more perceptions of everyday discrimination significantly predicted increases in ARS, $\beta = .562$, $t(197) = 9.54$, $p < .001$. However, perceptions of everyday discrimination did not predict anticipatory bodily alarm responses (ABARS), $F(1,197) = 1.92$ $p=.17$, $\beta = .098$ $t(197) = 1.40$, $p=.168$.

**Anger expression.** With regard to the STAXI-II, perceptions of everyday discrimination did not predict anger expression, $F(1,197) = .346$ $p=.557$, $\beta = -.042$ $t(197) = -.588$, $p=.557$. 

\[ t(197) = 7.76, p < .001. \]
In sum, the RaLES significantly predicted general stress, ARS, ABARS, and anger expression. Everyday Discrimination significantly predicted general stress and ARS. However, it did not significantly predict ABARS or anger expression. Therefore, conditions were partially met to support Hypothesis II, the null was partially rejected.

**Hypothesis 3:** The relationship between social media use and general stress, race-related stress, and anger expression will be mediated by perceived racism and everyday discrimination.

Serial multiple mediation analyses were conducted in SPSS using the PROCESS add-on. Social media consumption (measured by Facebook interactive use) was used as a predictor variable. This is because, similar to other research (Duggan et al., 2014), Facebook was reported as the most actively and frequently used social media site in this study. Moreover, SnapChat was the second most frequently used social media site, not Twitter. Both perceived racism (measured by the RaLES) and everyday discrimination served as the mediating variables, while general stress, race-related stress (measured by the anticipatory race-related stress and anticipatory bodily alarm response subscales of the PARS), and anger expression (measured by the STAXI-II) were the dependent variables.

**General stress.** Multiple regression analyses were conducted to assess each component of the proposed serial multiple mediation model for Facebook interactive use, general stress, perceived racism, and everyday discrimination. First, it was found that Facebook interactive use did not positively predict general stress, \( F(1,197) = .28, p = .6, R^2 = .002, \beta = -.019, t(197) = -.53, p = .6 \), therefore \( c \)-path (i.e., \( X \) predicts \( Y \)) was not significant. However, it was found that Facebook interactive use positively predicted perceived racism using the RaLES \( F(1,197) = 9.03, p < .01, R^2 = .051, \beta = .097, t(197) = 3.00, p < .01 \), therefore \( a^1 \)-path (i.e., \( X \) predicts \( M \)) was
significant. Facebook interactive use also predicted everyday discrimination $F(2,196)= 45.57, p < .001, R^2 = .32, \beta = -.33, t(196)= -5.47, p < .001$, therefore $a^2$-path (i.e., X predicts W) was significant. The third $a$–pathway (i.e., M predicts W) was also significant, $F(2,196)= 45.57, p < .001, R^2 = .32, \beta = 1.21, t(196)= 8.36, p < .001$, in that perceived racism predicted everyday discrimination. Regarding the $b^1$ and $b^2$ pathways, regression analyses revealed perceived racism, $F(3,195)= 8.25 p < .001, R^2 = .17, \beta = .30, t(195)= 2.95 p < .01$, and everyday discrimination, $F(3,195)= 8.25 p < .001, R^2 = .17, \beta = .11, t(195)= 2.7, p < .01$, predicted general stress.

As $a^1$, $a^2$, $b^1$, and $b^2$ pathways were significant, a serial multiple mediation analysis was conducted using the bootstrapping method (Hayes, 2012; Preacher & Hayes, 2004). In the present study, the 95% confidence interval of the indirect effect was obtained with 5000 bootstrap resamples (Preacher & Hayes, 2008). Once this analysis was complete, results confirmed the indirect effects of perceived racism ($\beta = .03, CI= .009 - .064$) and everyday discrimination ($\beta = -.036, CI= -.076 - -.01$) on the relationship between Facebook interactive use and general stress. There was also evidence of a serial indirect effect. That is, together, both perceived racism and everyday discrimination indirectly affected the relationship between Facebook interactive use and general use ($\beta = .013, CI= .004 - .03$). These indirect effects were observed despite the fact that, when controlling for perceived racism and everyday discrimination, the direct effect ($c'$) of Facebook interactive use (X) on general stress (Y) was insignificant, ($\beta = -.025, t(195)= -.723, p = .47$). Thus, no mediation effect was detected. Figure 10 illustrates these relationships.
Anticipatory race-related stress (ARS). In PROCESS, multiple regression analyses were also conducted to examine each component of the proposed serial multiple mediation model for Facebook interactive use, anticipatory race-related stress, perceived racism, and everyday discrimination. Although Facebook interactive use did not positively predict anticipatory race-related stress, $F(1,197)= 1.08, p = .3, R^2 = .005, \beta = -.033, t(197)= -1.03, p = .3$, Facebook interactive use did positively predict perceived racism, $F(1,197)= 9.03, p < .01, R^2 = .051, \beta = .097, t(197)= 3.00, p < .01$. Therefore, $c$-path (i.e., $X$ predicts $Y$) was not significant, whereas $a'$-path (i.e., $X$ predicts $M$) was significant. Analyses also revealed Facebook interactive use predicted everyday discrimination, $F(2,196)= 45.57, p < .001, R^2 = .32, \beta = -.33, t(196)= -
5.47, \( p < .001 \), which rendered \( a^2 \)-path (i.e., \( X \) predicts \( W \)) significant as well. The third \( a \) pathway (i.e., \( M \) predicts \( W \)) was additionally significant, \( F(2,196)= 45.57, p < .001, R^2 = .32, \beta = 1.21, t(196)= 8.36, p < .001 \), in that perceived racism predicted everyday discrimination. Regarding the \( b \) pathways, perceived racism predicted anticipatory race-related stress (\( b^1 \)-path), \( F(3,195)= 38.3, p<.001, R^2 = .38, \beta = .32, t(195)= 3.98 p < .001 \), and everyday discrimination predicted anticipatory race-related stress (\( b^2 \)-path), \( F(3,195)= 38.3 p<.001, R^2 = .38, \beta = .20, \ t(195)= 5.31, p < .001 \).

Because the conditions were met, (i.e., \( a^1, a^2, b^1 \), and \( b^2 \) path were significant), a serial multiple mediation analysis was conducted using the bootstrapping method (Hayes, 2012; Preacher & Hayes, 2004). Again, the 95% confidence interval of the indirect effect was obtained with 5000 bootstrap resamples (Preacher & Hayes, 2008). After analyses, the indirect effects of perceived racism (\( \beta = .031, CI= .011 -.10 \)) and everyday discrimination and (\( \beta = -.062, CI= -.10 -.035 \)) on the relation between Facebook interactive use and anticipatory race-related stress were confirmed. Further, there was evidence of a serial indirect effect, meaning both perceived racism and everyday discrimination indirectly affected the relationship between Facebook interactive use and anticipatory race-related stress (\( \beta = .022, CI= .008 -.04 \)). However, there was no mediation effect, in that the direct effect (\( c' \)) of Facebook interactive use (\( X \)) on anticipatory race-related stress (\( Y \)) was insignificant, when controlling for perceived racism and everyday discrimination (\( \beta = -.023, t(195)= -.81, p = .41 \)).
Figure 11. Serial multiple Mediation Model of Relationships between Facebook interactive use, Anticipatory Race-Related Stress, Perceived Racism, and Everyday Discrimination

Anticipatory bodily alarm response (ABAR). To test the other PARS subscale, multiple regression analyses were conducted with Facebook interactive use as the IV, anticipatory bodily alarm response as the DV, and both perceived racism and everyday discrimination as the mediating variables. The first regression analyses indicated Facebook interactive use did positively predict anticipatory bodily alarm response, $F(1,197)= 28.01, p < .001, R^2 = .14, \beta = .18, t(197)= 5.3, p<.001$, meaning $c$-pathway (i.e., $X$ predicts $Y$) was significant. Facebook interactive use also positively predicted perceived racism, $F(1,197)= 9.03, p < .01, R^2 = .051, \beta = .097, t(197)= 3.00, p<.01$ and everyday discrimination, $F(2,196)= 45.57, p$
\[ R^2 = .32, \beta = -.33, t(196) = -5.47, p < .001. \] Therefore \( a^1 \)-path (i.e., X predicts M) and \( a^2 \)-path (i.e., X predicts W) were both significant. Regarding the relationship between the mediators, perceived racism did predict everyday discrimination, which made \( a^3 \)-pathway (i.e., M predicts W) significant, \( F(2,196) = 45.57, p < .001, R^2 = .32, \beta = 1.21, t(196) = 8.36, p < .001. \) Further, perceived racism, \( F(3,195) = 22.01, p < .001, R^2 = .27, \beta = .36, t(195) = 3.83, p < .001, \) and everyday discrimination, \( F(3,195) = 22.01, p < .001, R^2 = .27, \beta = .011, t(195) = 3.83, p < .001, \) were both predictive of anticipatory bodily alarm response. As such, \( b^1 \)-path (i.e., M predicts Y) and \( b^2 \)-path (i.e., W predicts Y) were significant.

Due to the fact that \( a^1, a^2, b^1, \) and \( b^2 \) pathways were all significant, mediation analyses were undertaken using the bootstrapping method (Hayes, 2012; Preacher & Hayes, 2004). Based on the recommendations of Preacher and Hayes (2008), the 95% confidence interval of the indirect effect was obtained with 5000 bootstrap resamples. Similar to the other results, indirect effects were observed. Both perceived racism (\( \beta = .035, CI = .01 - .07 \)) and everyday discrimination (\( \beta = -.003, CI = -.034 - -.026 \)) influenced the relation between Facebook interactive use and anticipatory bodily alarm response. Despite these findings, there was no evidence of a serial indirect effect of the mediating variables on the relationship between Facebook interactive use and anticipatory bodily alarm response (\( \beta = .001, CI = -.01 - .013 \)). Tests also failed to reveal a mediation effect, in that the direct effect of Facebook interactive use (X) on anticipatory bodily alarm response (Y) remained significant, when controlling for perceived racism and everyday discrimination (\( \beta = .15, t(195) = 3.76, p < .001 \)). See Figure 12 for pathway illustrations.
Anger expression. Finally, multiple regression analyses were conducted to assess each component of the proposed serial multiple mediation model for Facebook interactive use, anger expression, perceived racism, and everyday discrimination. Facebook interactive use was found to positively predict anger expression, $F(1,197)= 10.53, p < .001, R^2 = .05, \beta = .25, t(197)= 3.24, p < .001$, and perceived racism $F(1,197) = 9.03, p < .01, R^2 = .051, \beta = .097, t(197)= 3.00, p < .01$. Therefore $c$-path (i.e., X predicts Y) and $a_1$ (i.e., X predicts M) were significant. Facebook interactive use also predicted everyday discrimination $F(2,196)= 45.57, p < .001, R^2 = .32, \beta = -.33, t(196)= -5.47, p < .001$, therefore $a_2$-path (i.e., X predicts W) was significant. Perceived racism also predicted everyday discrimination, thus $a_3$-pathway (i.e., M predicts W) was
significant, $F(2, 196)= 45.57, p < .001, R^2 = .32, \beta = 1.21, t(196)= 8.36, p < .001$. Regarding the mediating variables, perceived racism $F(3, 195)= 12.90 p < .001, R^2 = .16, \beta = 1.02, t(195)= 4.86, p < .001$, along with everyday discrimination $F(3, 195)= 12.90 p < .001, R^2 = .16, \beta = -.23, t(195)= -.236, p < .05$, were predictive of anger expression. Thus, $b^1$ and $b^2$-path were significant.

Because $a^1$, $a^2$, and $a^3$ paths and $b^1$ and $b^2$ paths were significant, a final test of mediation was conducted using the bootstrapping method (Hayes, 2012; Preacher & Hayes, 2004). At 95% confidence interval with 5000 bootstrap resamples (Preacher & Hayes, 2008), the indirect effects of perceived racism ($\beta = .10, CI= .04 - .20$) and everyday discrimination ($\beta = .08, CI= .016 - .16$) on the relation between Facebook interactive use and anger expression were confirmed. There was also evidence of a serial indirect effect, such that both perceived racism and everyday discrimination indirectly affected the relationship between Facebook interactive use and anger expression ($\beta = -.028, CI= -.0718 - -.005$). Moreover, there was evidence of a full mediation effect, in that the direct effect of Facebook interactive use (X) on general stress (Y) became insignificant, when controlling for perceived racism and everyday discrimination ($\beta = .10, t(195)= 1.16, p = .25$). Figure 13 illustrates this final mediation model.
Figure 13. Serial multiple mediation model of relationships between Facebook interactive use, Anger Expression, Perceived Racism, and Everyday Discrimination

In summary, perceived racism and everyday discrimination were found to indirectly affect relationships between Facebook interactive use and general stress, anticipatory race-related stress, and anticipatory bodily alarm response, and anger expression. Analyses also revealed perceived racism and everyday discrimination fully mediated the relationship between Facebook interactive use and anger expression. Thus, results supported Hypothesis 3, and the null was rejected.

Hypothesis 4: It is hypothesized that gender will moderate the relationship between social media usage and general stress, race-related stress, and anger expression. A moderator variable is a variable that impacts the strength and/or direction of the relationship between a predictor variable and an outcome variable. A “moderation implies that the causal
relation between two variables changes as a function of the moderator variable” (p. 1174, Baron & Kenny, 1986). The current study sought to examine gender as a moderator of the relations between social media use and general stress, race-related stress, and anger expression. However, gender was not correlated with anger expression or any of the subscales of PAR. Therefore, a moderation analysis was only attempted with general stress.

### Table 6.

**Correlations between Gender, Dependent, and Independent Variables**

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<th>ARS</th>
<th>ABARS</th>
<th>FB Interactive</th>
<th>FB/Twitter</th>
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<td>.049</td>
<td>-.069</td>
<td>-.295**</td>
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**Gender, Facebook Interaction Use, and General Stress**

To test the hypothesis whether gender moderates the relationship between Facebook interactive use and general stress, a hierarchical multiple regression analysis was conducted using PROCESS. Because gender was a dichotomous variable, it was dummy coded to take on two values, 1 (female) and 0 (male). Second, Facebook interactive use and the dummy coded variable for gender were entered. These variables accounted for a significant amount of variance in general stress, $R^2 = .075$, $F(3, 195) = 4.44$, $p < .01$. To avoid potentially high multicollinearity with the interaction term, which can be problematic (Aiken & West, 1991), PROCESS centered the variables and created an interaction term between Facebook interactive use and gender.

Next, the interaction term between Facebook interactive use and gender was added to the regression model, which did not account for a significant proportion of the variance in general stress, $\Delta R^2 = .0241$, $\Delta F(3, 195) = 3.17$, $p = .076$, $\beta = -.162$, $t(195) = -1.78$, $p = .076$. Therefore, gender did not moderate the relationship between Facebook interactive use and general stress. Thus, the conditions for Hypothesis 4 were not met and the null was accepted.
Discussion

Today young African American adults are ubiquitously using SNSs to not only communicate with friends, but also to strategically expose, attack, and subvert racism in America. By providing open and free virtual space for individual expression, SNSs have sparked unapologetic discussions and critiques of modern-day race relations and racism among its users. This has been most evidenced by the activities and presence of the Black Lives Matters (BLM) movement, the viral sharing of videos capturing racial discrimination, and posted user-generated content related to race. Tynes and Markoe (2010) found African Americans are bothered by the increasing amounts of racism and discussions of race online. However, no studies, to date, have investigated if this discomfort manifests as general stress, anger expression, or race-related stress. Thus, findings from the current study fill this gap in the literature as it examined specific psychological and emotional consequences of young African American adults’ use of social media, and resulting perceptions of racism.

Prior studies have established that young African American adults are frequently using social media platforms to formulate an online cultural identity, discuss structures and byproducts of American racism, and express their thoughts in real time about news events. However, this is one of the first studies to examine the degree to which social media use among young African American adults increases perceptions of racism and/or anger expression and race-related stress. Given the intensity and quantity of social media discussions of race-related events, this study’s findings on ties between social media use, perceptions of racism, and subsequent anger and stress responses are pertinent. Moreover, as there is no indication that the reach and popularity of social media platforms are to wane in the near future, the current study offers significant insight into the consequences of a technology likely to remain inextricably linked to human interactions for generations to come.
Findings

The aim of the study was to explore the relationships between young African Americans' use of social media and their perceptions of racism, general stress, race-related stress, and anger expression. Findings from this study confirmed several of the hypotheses.

Hypothesis I. The first hypothesis posited that social media use (as measured by Facebook interactive use and Facebook and Twitter use) would predict general stress (as measured by the Perceived Stress Scale), anger expression (as measured by the STAXI-II), and race-related stress (as measured by anticipatory race-related stress and anticipatory bodily alarm response). Findings offered partial support for this hypothesis. Facebook interactive use significantly predicted anticipatory bodily alarm response and anger expression, but not anticipatory race-related stress. On the other hand, Facebook and Twitter use predicted anticipatory race-related stress, anticipatory bodily alarm response, and anger expression. However, neither Facebook interactive use or Facebook and Twitter use predicted general stress.

Findings revealed both Facebook interactive use and Facebook and Twitter use positively predicted anticipatory bodily alarm response and anger expression. These relationships and their direction were expected. Findings from this study support prior research on other groups that have found social media use generates anger and other negative outcomes among college students (Martin et al, 2013). To understand why these positive relationships exist, research on theories related to social sharing and emotion contagion are helpful.

According to Rimé (2009), social sharing is the process of communicating with others about significant emotional experiences and about the event that triggered those experiences. The effect of social sharing on the sharer is largely dependent upon the valence of the event, with positive events generating positive affect and negative events producing negative affect. While
initial studies of social sharing focused primarily on face-to-face interactions, Choi and Toma (2014) found evidence of social sharing on social media platforms. Examining the affect of college students after they shared negative and positive events on Facebook and Twitter, the authors found regardless of the intensity of the event, people who shared negative events experienced negative affect.

As African Americans are increasingly using SNSs to share their feelings about and reactions to racist events in America, Choi and Toma’s findings are relevant. From the acquittal of George Zimmerman (Florini, 2015) to the non-indictment of the officer that shot Michael Brown (Bonilla & Rosa, 2015), various events related to racism and discrimination have incited outrage among young African Americans. Moreover, many have taken to social media to explicitly express their discontent. To the extent that social sharing of negative events causes negative affect among sharers, it is logical that use of social media among young African American adults—which likely involves sharing or discussing negative race-related events—would generate anger. This anger, in turn, may also lead to and/or increase in anticipatory bodily alarm responses.

Research also shows venting anger or ruminating about negative experiences makes people angrier and more aggressive (Bushman, Bonacci, Pedersen, Vasquez, & Miller, 2005). As African Americans are using SNSs such as Tumblr (Kang, 2015) to express their anger and frustration about racism, this venting, and the increased anger it can cause, may explain why this study captured a positive relationship between social media use and anger expression. Moreover, studies have also found expressing a negative emotion prevents individuals from distracting, which can limit or reduce the negative affect produced by a negative event (Nolen-Hoeksema & Morrow, 1993; Tice & Bratslavsky, 2000). Thus, if young African American adults are sharing
upsetting events about discrimination, not only will the sharing itself incite anger, but the lack of distraction will likely maintain the intensity of the negative affect as well.

Closely related to social sharing, emotion contagion may also be a potential mechanism whereby young African American adults are experiencing anger as a result of social media use. Research on emotion contagion has found that similar to face-to-face interactions, interactions via social media can equally lead to the transference of negative and positive emotions (Cheshin, Rafaeli, & Bos, 2011; Kramer, Guillory, & Hancock, 2014). Hidalgo, Tan, and Verlegh (2015) analyzed blog posts and determined bloggers who shared negative events received feedback of more intense empathy than those who shared neutral or positive ones. Similar results were found in a massive social experiment on Facebook. Manipulating the newsfeed content of over 698,000 users, Kramer, Guillory, and Hancock (2014) found that when positive expressions were reduced, people produced fewer positive posts and more negative posts. When negative expressions were reduced, the opposite pattern emerged.

Tweets and posts related to race and racism are abundant on social media, and for some users, they are inescapable. Given the documented potency of emotion contagion on social media, it seems likely that young African American adults who read other social media users’ negative or angry posts about racism would also identify with and adopt these feelings of anger. This is even more plausible when one considers the fact that African American social media users follow one another more often and actively participate in insular online communities (e.g., Black Twitter) (Manjoo, 2010). Uniquely using SNSs in tight network clusters has facilitated the sharing of culturally specific ideas and the construction of a Black digital identity (Florini, 2015; Manjoo, 2010). However, findings from this study suggest that these clusters may also facilitate
the sharing of negative emotions (i.e. anger), which young African American adults may experience as a result of viewing racism online.

Research by Stieglitz and Dang-Xuan (2014) also aid in explaining why both forms of social media use predicted anger expression. Reviewing over 165,000 tweets, the authors examined emotions and information diffusion in a social media setting. Results revealed that emotionally charged Twitter messages tended to be retweeted more often and more quickly compared to neutral ones. Returning to the current study, if young African Americans adults are interactively using Facebook and Twitter to share their anger about perceptions of racism, it is more likely that these posts will be retweeted or reposted more often and rapidly than neutral ones. Further, as such posts are likely to be retweeted again, anger is even more diffused and shared throughout the social network. In sum, extant research on anger, emotion contagion, and social sharing support this study’s finding that social media use predicted anger expression.

Results also revealed both forms of social media use (i.e., Facebook interactive and Facebook and Twitter use) predicted anticipatory bodily alarm response (ABAR). That is, young African American adults who use social media are likely to respond to impending encounters with racism physiologically (i.e., experience chest pains, excessive sweating, shaking hands, and lump in throat). There are several potential explanations for this finding. First, as results from hypothesis III identified a positive relationship between social media use and perceived racism, it is likely that young African American adult social media users are perceiving racism and responding physiologically. Second, it may also be the case that the link between social media use and anger expression is the reason why social media use was associated with anticipatory bodily alarm response. Anger produces some of the physiological responses captured by the anticipatory bodily alarm response scale (e.g., sweating, muscle tension, shaking hands) (Mills,
Thus, if participants who use social media are likely to express anger, then they are also likely to respond to physiologically.

Unexpectedly Facebook interactive did not predict anticipation of race-related stress, while Facebook and Twitter use led to decreased anticipation of race-related stress. Neither of these findings was hypothesized. However, it could be the case that accessing both SNSs, rather than just one, generates a less myopic vision of race-relations in America. Facebook and Twitter have been used to share news related to racism and by White racists to espouse hate. However, they have also been used to denounce racist acts and to support African Americans’ fight against racial discrimination. Choi and Lee (2014) found that frequent SNS use leads to more opportunities to interact with heterogeneous groups.

For example, various posts about Stephen Colbert—the past host of The Colbert Report—and his support of the BLM movement have been widely circulated on SNSs. Viral videos have not only captured Colbert wearing a BLM wristband on air (King, 2015), but in a powerful interview with DeRay McKesson—the leader of the BLM movement—Colbert sat in the chair reserved for guests, while McKesson sat in Colbert’s wooden chair behind the desk. This act, which was publicized on Facebook and Twitter, was thought of by Colbert himself to symbolize the relinquishment of his White privilege (Swann, 2016). Relatedly, #Whiteprivilege has also been increasingly used by White social media users to explore, acknowledge, and educate people about the social advantages their skin color has unjustly afforded them.

BuzzFeed, a popular news website, has also addressed White privilege. By uploading videos of creative skits and visual demonstrations, BuzzFeed has unveiled the partiality of a social system within which minorities feel discomfort, and Whites, due to their positionality, are immune. Its video “What is Privilege” has been viewed on YouTube more than 1.7 million times
(BuzzFeedYellow, 2015), while “People Of Colour From Around the World Respond to ‘White’” (BuzzFeedVideo, 2016) and “If White People Thought About Race Like People of Color” (BuzzFeedVideo, 2015) have been collectively viewed over 1.8 million times. Social media drives 75% of BuzzFeed’s 200 million monthly visits (Furubayashi, 2016), meaning Facebook and Twitter shares of BuzzFeed posts and links are responsible for most of their website traffic. In this sense, the anti-racist content BuzzFeed provides could be positively influencing young African Americans’ perceptions and anticipation of racism.

Moreover, BuzzFeed is reaching their target audience (i.e., young adults 18-34) more than CBS, CNN and Fox News combined, news outlets that are more likely to share negative race-related content and/or include racist commentary (Furubayashi, 2016). In this regard, the study’s finding that Facebook and Twitter use decreased anticipatory race-related stress becomes clearer. Given the presence of BuzzFeed and the social media activities of White allies, use of both Twitter and Facebook may increase young African Americans exposure to anti-racism, which in turn, may reduce their anticipation of race-related stress. Further, it is important to note that social media use accounted for only 2% of the variance in anticipatory race-related stress. Thus, while Facebook and Twitter use on anticipatory race-related stress was inversely related, interpretations of this finding should be conservative.

No support was rendered for a relationship between social media and general stress. There are a few explanations for this finding. First, perceived stress was captured by self-reports, which may not have accurately assessed participants’ levels of stress. Second, how people use social media, particularly Facebook, is as diverse as its contents. While some individuals may use Facebook to learn about cooking recipes or to keep in touch with international friends, others may find Facebook useful for sharing parenting ideas and funny memes, activities typically
classified as non-stressful. Further, Facebook would encourage these activities by flooding one’s timeline with content and/or advertisements that reflect their interests (Oremus, 2016). As such, not everyone who engages in social media will experience stress. This logic is further supported when one considers that perceived racism was found to predict stress, and indirectly affect the relationship between social media and general stress. Thus, if individuals do not perceive racism on social media, in that they do not read posts related to racism or have timelines reflective of political or social issues, then their social media activity may not be stressful.

**Hypothesis II.** The second hypothesis was that perceived racism would predict general stress, anticipatory race-related stress, anticipatory bodily alarm response, and anger expression. Findings lent partial support for this hypothesis. Similar to past research (Kessler et al, 1999), findings revealed perceived racism as measured by the RaLES positively predicted general stress such that the more participants perceived racism the more likely they were to experience general stress. Given the history of American slavery, Jim Crow laws, and current racial tensions, these findings were expected. As previously discussed, stress is generated when an event is perceived as threatening. As American racism has manifested in the lynching of innocent Black women and men, church burnings, and police beatings, it is understandable why perceptions of racism would generate general stress. The finding that perceived racism predicted general stress was consistent with past research. Taylor and Turner (2002) found Black students reported higher levels of stress and more frequent exposure to discrimination than students of other ethnic groups, while Pascoe and Richman’s (2003) meta-analysis found perceived discrimination significantly heightened stress responses.

This study also found perceived racism was associated with anger expression. These findings are consistent with previous research conducted by Carter and Forsyth (2010) and Swim
et al. (2003). Anger is often expressed following the presentation of an emotion-invoking stimulus (Deffenbacher, Oetting, Lynch, & Morris, 1996). Insomuch as systemic, cultural, and individual racism have negatively impacted African American communities by removing employment and education opportunities, stymieing progress, and putting the lives of many African Americans at risk, perceiving racism is understandably linked to anger expression. Blackmon and Thomas (2015) found African Americans with a race-focused Black racial identity reported higher levels of anger after learning about Trayvon Martin’s death. According to Feagin (2000), anger is a natural and often experienced response to racism in America. Findings in the current study corroborate this claim.

Analyses from this research also found perceived racism positively predicted anticipatory race-related stress and anticipatory bodily alarm response. While this study is among the first to employ the PARS, such findings are consistent with prior research that found race-related stress (as captured by the IRSS) to be related to perceived racism (Utsey & Ponterotto, 1996). The fact that perceived racism accounted for nearly 15% of the variance in anticipatory bodily alarm response (ABARS) and 23% of the variance in anticipatory race-related stress (ARS) was also not a surprise. Utsey et al. (2013) found in a validation study of the PARS that ARS and ABARS were both positively related to frequency of experiencing discrimination and worrying about experiences of discrimination. Given the ABARS and ARS were specifically designed to capture physiological and psychological responses to anticipation of racism, findings that perceived racism predicted anticipatory bodily alarm response and anticipatory race-related stress were expected.

The Everyday Discrimination scale (ED) was also used to measure perceptions of racism. The ED scale assessed persons’ general perceptions that Black people as a collective are
discriminated against. The scale accounted for over 31% of the variance in anticipatory race-related stress, but it did not predict anticipatory bodily alarm response. This was perhaps due to the fact that ED tapped into perceptions of collective racism rather than individual experiences with racism. As such, participants may find it stressful to perceive collective everyday discrimination, but not personally attacking. Thus, there may not be the need to respond physiologically. Everyday Discrimination also did not predict anger expression. One plausible reason for these findings might be due to different salient components of racial identity.

According to Seller et al, (1998), racial identity salience, “the extent to which one’s race is a relevant part of one’s self-concept at a particular moment or in a particular situation (pp. 24),” varies across Africans Americans and is different from racial centrality, which is how one normatively defines their racial identity across situations. To this effect, while young African Americans may self-identify as Black/African-American, meaning race is central to their identity, being Black may not be a salient aspect of their self-identities. Threats to self typically constitute an anger response (Fernandez, 2008). As such, perceptions that Black people as a whole experience discrimination may not be as emotionally provoking as “I experience discrimination”, which the RaLES captures.

As seen in recent mainstream media, some African American millennials have indicated a lack of racial salience by embracing the concept of a “New Black” (Parham, 2014). Coined by Pharrell, a Grammy winning successful music producer, the “New Black” emphasizes the individual over the collective, such that ethnic/racial identity is merely a physical marker and not a definitive one (Williams, 2015b). Surprisingly, extant research lends support for why the “New Black” concept is appealing to young African Americans. Komarraju and Cokley (2008) found African American college students scored higher than European American college students on
horizontal individualism; meaning they support equality, value the freedom to be themselves without comparison to others, and do not encourage efforts to be better than others (Oishi, Schimmack, Diener, & Suh, 1998). Therefore, while the current study was guided by social identity theory, dimensions of individualism may have contributed to why perceptions of collective everyday discrimination did not predict anger expression or anticipatory bodily alarm responses in this sample. Thus, findings offered partial support for hypothesis II.

**Hypothesis III.** Support was rendered for hypothesis III, such that perceived racism and everyday discrimination had an indirect effect on the relationships between social media use and experiences with general stress, anger expression, anticipatory bodily alarm response, and anticipatory race-related stress. While social media can provide a space to connect with friends, it has become increasingly inflamed with racial undertones that are ostensibly affecting young African American adults (Williams, 2015a). As such, it makes sense that social media users, by way of perceived racism and everyday discrimination, would experience negative emotional and stress responses. This is important as it lends support for other research that has documented stress responses among Facebook users (Fox & Moreland, 2014). For example, among Facebook users with large networks, stress and symptoms of upper respiratory infections have been found (Campinsi et al., 2012).

While no studies have identified perceived racism and everyday discrimination as mediators of the relationships between social media use and general stress, anticipatory race-related stress, anticipatory body alarm response, and anger expression, the transactional model of stress and coping helps to contextualize the study’s findings. According to the model, the impact of external stressors on stressful experiences is mediated by: 1) the appraisal of stress and 2) social and cultural resources at disposal. Based on this study’s results, it appears perceptions of
racism and everyday discrimination activate appraisals of race-related stress, general stress, and anger expression among young African American adults. Further, social media appears to be the sociocultural resource that is informing perceptions of racism and subsequent appraisals of stress levels. Network events may also be diffused through social media use, which Kessler and McLeod (1984) describe as stress inducing events that are not experienced by the respondent, but by someone intimately connected through a social network. Although perceived racism and everyday discrimination did not fully mediate all of the relationships (only the relationship between Facebook interactive use and anger expression), their indirect effects on the relations between social media use and anticipatory bodily alarm response, anticipatory race-related stress, and general stress were important findings.

**Hypothesis IV.** Findings from the current did not lend support for hypothesis IV, which posited gender would moderate the relationships between social media use and the dependent variables of interest (i.e., general stress, anticipatory race-related stress, anticipatory bodily alarm response, and anger expression). Although gender was positively correlated with general stress, it did not moderate the relationship between social media use and general stress. Despite past research that suggest women are more likely to report stress and Black men are more likely to report experiences with racism (Assari, Watkins, & Caldwell, 2014; Seaton, Caldwell, Seller, & Jackson, 2008), this study did not find gender to be an influential factor on perceptions of racism, general stress, aspects of race-related stress, or anger expression.

Though these non-significant findings suggest gender may not have an effect on young African Americans’ appraisals of stress and perceptions of racism, they could be a function of the use of different measures of stress than those used in previous research. Previous studies have utilized objective measures of general stress (i.e., biological indicators of stress), which have
been found to more accurately assess stress levels (Dolezar, McGrath, Herzig, & Miller, 2014). However, other research has relied on self-reported general stress and found significant results (Andreou et al., 2011).

Thus, a more plausible explanation may be related to the gender equality movement. Past research attributed gender differences in stress to gender differences in socialization (Ptacek et al., 1992). However, gender-neutral parenting and socialization have been pushed in the last decade (Martin, 2005). Perhaps these changes in rearing practices are why this study did not capture significant differences in general stress, anger expression, or race-related stress responses. Moreover, use of social media did not differentiate significantly along gender lines, especially regarding Facebook use. Women were more likely to report Instagram and SnapChat as the SNS they most frequently use; however, as the measure of social media use focused on Facebook—which women and men reported using relatively the same—the current study was not designed to tap into those potential differences, thus the null hypothesis was accepted.

**Implications**

Findings from this study have social, health, and programmatic implications. Similar to other research (Moreno et al., 2011 Brooks, 2015), the current study found that among young African American adults social media use can be maladaptive, in that it can increase perceptions of racism, which is associated with negative psychological and health outcomes. Findings from this study revealed that the more a young African American adult uses Facebook interactively and Facebook and Twitter frequently, the more likely they are to perceive racism and subsequently express anger expression and physiologically respond to impending encounters with racism. Given the appeal of Facebook and Twitter among young African Americans
(Florini, 2015; Manjoo, 2010), and the fact that African Americans are more likely to use Twitter than other ethnic groups (Duggan et al., 2014), these findings have important implications. African Americans have been found to extensively use SNSs. Yet this is one of the first studies to link SNS use to perceived racism, anger expression, and anticipatory bodily alarm response. As young African Americans’ perceptions of racism on social media may increase in the future—especially in light of the presidential primaries—these findings have relevant implications. If SNS sites continue to be flooded with discussions of racism and race-related content, more young African American social media users may become angrier and prone to physiologically respond to anticipation of racism. Indeed, increased Facebook and Twitter use was found to decrease anticipation of race-related stress. However, this effect was small. Insofar as the mediated model of perceived racism, everyday discrimination and social media use accounted for significant portions of the variance in general stress, anger expression, and anticipatory bodily alarm responses, overall findings suggest that extensive social media use may be maladaptive for young African American adults.

**Health implications.** Because perceived racism by way of Facebook and Twitter use, were related to general stress, anticipatory bodily alarm response, and anger expression, findings from this study reveal social media use may qualify as a potential stressor for young African American adults. Such findings have important health implications. Research has linked cumulative stress and resulting allostatic load (i.e., overactivation of the body’s regulatory systems and overuse of mental and physical coping resources) to weakened cardiovascular and immune functioning (McEwen, 1998), disease promotion (McEwen & Seeman, 1999), mortality (Seeman, Rowe, McEwen, & Singer, 2001), and declines in cognitive and physical functioning (Seeman, Singer, Rowe, Horwitz, & McEwen, 1997).
Moreover, as stress can cause chronic release of glucocorticoids, young African Americans that experience general stress through perceptions of racism on social media may experience changes to important brain structures related to memory, emotions, and neurodevelopmental functioning (Lupien, McEwen, Gunnar, & Heim, 2009). Young African American women who plan to have children may also want to be cautious of extensive Facebook or Twitter use. As research on pre-natal maternal stress shows heightened levels of glucocorticoids are linked to lower birth weight (Glover, 1997), increased perceptions of racism via social media use, and resulting stress responses, may be harmful to prenatal health.

The results that perceived racism, via social media use, increases anger expression and anticipatory bodily alarm response among young African American adults are also relevant to other chronic conditions, especially HIV. Young African Americans are at the highest risk for HIV infection. In fact, between 2005-2014, the number of new HIV diagnoses among young African American gay and bisexual men (aged 13 to 24) increased 87% (CDC, 2016). Moreover, 1 in 16 African American men will contract HIV in their lifetimes (CDC, 2016). As discussed, stress and negative emotional responses can undermine immunological functioning. Additionally, race-related stress has been linked to more sexual partners among young men and women (Stevens-Watkins et al, 2010). To the extent that young African Americans are more likely to contract HIV, understanding that social media use can heighten young African Americans perceptions of racism, and subsequent experiences with stress, anger, and anticipatory bodily alarm responses, is significant to health research.

The direct link between social media use and perceived racism and everyday discrimination also has health implications. As Pieterse, Todd, Neville, and Carter (2012) revealed in their meta-analytic review, perceived racism has been linked to psychological
distress in multiple studies. Walker, Salami, Carter, and Flowers (2014) found perceived
discrimination was directly and indirectly associated with suicide ideation, while Steffen et al.
(2003) and Brondolo et al. (2003) found perceived racism to be linked to heightened blood
pressure. To this effect, extensive social media use and increased perceptions of racism among young African American adults may put their psychological and physical health at risk.
Moreover, as young African American adults will likely continue to use Facebook and Twitter for years to come, their accumulated perceptions of racism may become risker for their health as they age. For example, Krieger et al (2013) found that among randomly selected Blacks (aged 35-64), those most highly exposed to racial discrimination were more likely to have adverse cardiovascular profiles.

Findings from this study are particularly relevant to cardiovascular health. For example, prior research has found higher numbers of health problems (Johnson & Broman, 1987) and higher triglyceride reactivity (Finney, Stoney, & Engebretson, 2002) among African American that express high levels of anger. Problems with circulatory disease have also been linked to anger expression (Magai, Kerns, Gillespie, & Huang, 2003). Insofar as both forms of social media, by way of perceived racism, predicted anger expression, results from this study suggest extensive social media use may undermine the cardiovascular health of African Americans adults. Taken together, findings from this study suggest Facebook and Twitter use (via perceptions of racism and associated stress and anticipatory bodily alarm responses) may compromise the health of young African American adults.

**Programmatic implications.** Given the results that social media use can heighten perceptions of racism, which can take a toll on cardiovascular health, results from this study could prove useful to health programs that aim to reduce cardiovascular risk among African
Americans. Recently socio-cultural factors, particularly experiences with racism, have been found to influence health outcomes among African Americans (e.g., heighten blood pressure [Pascoe & Richman, 2009], cause stress, [May, Cochran & Barnes, 2007], and increase risk for infant mortality [Giscombé & Lobel, 2005]). As such, researchers have attempted to identify and account for their effects so as to enhance preventative health strategies. To this end, findings from this study may be pertinent to the development of culturally specific prevention and health enhancement programs for African Americans. As social media can augment chronic perceptions of racism, health professionals may find it relevant to explore social media as a potential stressor, and develop ways to buffer its potential deleterious effect on health.

Results from this study also lend support for the development of programs that address maladaptive outcomes associated with social media use. Andreassen (2015) illuminates in his comprehensive review that SNS addiction shares similar symptoms of tolerance, withdrawal, conflict, salience, relapse, and mood modification with other addictions. However, despite these consequences, programs that address compulsive and harmful social media use are lacking. While several applications on cellphones and computers have been developed to reduce time spent on SNSs, no interventions exist specifically to reduce the maladaptive outcomes associated with social media use. Based on this study’s findings, future preventative programs could encourage young Africans Americans to take breaks from social media use and/or help them develop an accountability system with friends. For example, for every hour of social media use, heavy social media users could commit to two hours of meaningful face-face interactions (e.g., volunteerism), exercise, and/or self-improvement activities (e.g., reading, writing, and/or exploring entrepreneurial endeavors). Given Facebook and Twitter use can increase perceptions
of racism among African Americans, programs such as this could help to curtail some of the negative effects associated with chronic social media use.

**Future Research**

Many of the recommendations for future research are related to the limitations of this study. Although significant findings were rendered with a cross-sectional design, longitudinal studies that assess social media use over long periods of time could provide greater insight into the trajectory of social media use and how and when it influences the psychological and social responses of young African American adults. Such longitudinal studies could also address problems associated with self-reported social media usage, in that they could observe actual log-ins and/or ask participants to document their activities with daily diaries. Wang, Tchernev, and Solloway (2012) and Steinfield, Ellison, and Lampe (2008) have already laid the groundwork. Perhaps future work could aim to capture social media use at multiple points (e.g., at 6 months and at 1 year) to examine differences in perceived racism. A longitudinal study could also be designed to examine differences in perceptions of racism and anger expression after a person has stopped social media use. Emotional responses related to pre and post social media usage could be informative. Ultimately longitudinal studies could allow for more conclusions to be made about causal relationships between social media and African American’s affect and perceptions of racism.

Future studies could also make use of newly validated measures that assess multiple dimensions of social media use. For example, Bodroza and Jovanovic (2014) developed and validated the Psycho-Social Aspects of Facebook Use (PSAFU) scale, which measures five dimensions: 1) compensatory use of FB, self presentation of FB, socializing and seeking sexual partners, FB addiction, and FB profile as the virtual self. Given these dimensions, future research
could provide a clearer picture of how specific aspects of social media may influence African Americans. Closer examinations of emergent SNSs could also be useful. As seen in this study, SnapChat is increasingly popular among young African American adults.

Other variables that may influence how social media negatively or positively influences African Americans could also be explored. For example, racial identity has been found to buffer the relationship between perceived racism and other negative health and psychological outcomes (Sellers et al., 2000). In this regard, researchers could investigate if individuals with low and high racial identity perceive racism differently on social media. Moreover, racial identity could be explored as a potential buffer of the negative consequences found in this study (i.e., anger expression and anticipatory bodily alarm response).

Experimental studies that objectively measure stress by examining biological markers could also produce informative results about social media use among African Americans. For example, researchers could manipulate social media content to reflect low and high levels of racism and capture the emotional and stress responses of participants. Differences between low and high social media users’ experiences could also be assessed. Qualitative studies based on the findings of this study could further unpack the relationship between social media use and perceptions of racism. Extant qualitative inquiries have already been employed to determine the motivation of sharing information in social information spaces (Matschke, Moskaliuk, Bokhorst, Schummer, & Cress, 2014). In the future, similar studies could be developed to more thoroughly tap into African Americans’ feelings about perceiving racism online and why they continue to use social media platforms.

**Limitations**

The primary limitation of this study was its cross-sectional design. As findings were
based on use of social media, perceptions of racism, and subsequent emotional and stress responses at one point in time, more convincing information would likely be gathered from a longitudinal design. The instruments used to measure social media are also a limitation of this study. Although the social media measures used have been employed in other research, neither has been validated. Insofar as non-validated measures do not allow researchers to make as strong inferences about their findings as validated measures, findings from the current study have to be interpreted with caution.

Equally related to measurement are issues associated with self-reported social media usage and self-enhancement. Facebook addiction is a serious phenomenon that is receiving more traction (Andreassen, Torsheim, Brunborg, & Pallesen, 2012). To the extent that participants may not have wanted to be viewed as addicts of social media, their reports of social media usage may have been biased and not a true reflection of their usage. Self-reports of perceived stress may have also limited this study. As researchers have found objective measures of stress (e.g., examinations of biological markers) to be more accurate (Hellhammer, Wüst, & Kudielka, 2009), measuring stress through self-reports may not have been the best way to capture participants’ levels of stress.

Use of M-Turk participants may have also limited the study. Although efforts were made to ensure computer programs did not complete surveys and that serious M-Turk workers participated, there was the chance that some surveys were thoughtlessly completed. The use of a convenient sample via M-Turk was also a limitation. M-Turk users may be more online savvy and not representative of typical social media users. However, according to Buhermester, Kwang, and Gosling (2011), data collected via M-Turk is often at least as reliable as those obtained via traditional methods. Despite these limitations, findings from this study offer
significant insight into the potential influence of social media on African American’s perceptions of racism and subsequent emotional and stress responses. Such findings can assist future researchers in further exploring social media use and its potential socio-psychological consequences.

**Conclusion**

When Mark Zuckerberg founded Facebook in 2004, no one could have imagined that 15 years later it would become a primary source of news or a platform for young African American adults to expose, denounce, and discuss American racism. While Facebook and other SNSs have been viewed as safe spaces for young African Americans to release their frustrations about American racism, findings from this study reveal SNSs increase perceptions of racism, and subsequently influence expressions of anger, anticipatory body alarm response, and general stress. To the extent that these outcomes can collectively impact the health of African Americans, social media use may be more maladaptive to young African Americans than previously thought. Future longitudinal and qualitative studies of social media may build upon this research by utilizing more validated measures of social media and/or measuring biological markers of stress. Such studies could be used to aid preventative research and further explore the impact of social media use among young African Americans.
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Wongtongkam, Wongtongkam, Nualnong, Ward, Paul Russell, Day, Andrew, &


APPENDIX A

Thank you for meeting our criteria!

You will be taking part in a study that is looking at social media use among young African Americans. You will also be asked your opinion about other events such as discrimination and your responses to such events.

This study should take approximately 20-30 minutes to complete. All of your answers will be kept completely confidential, and will not be linked in any way to any information that personally identifies you. Additionally, please keep in mind that there are no right or wrong answers to these items; please provide your honest response. You may stop participating at any time. If you have any questions prior to participating, please feel free to contact the researchers at fzbelgra@vcu.edu or maxwellml@vcu.edu

Let's begin the survey!

**Instructions**: The questions in this scale ask you about your feelings and thoughts during the last month. In each case, you will be asked to indicate by circling *how often* you felt or thought a certain way

<table>
<thead>
<tr>
<th>0 = never</th>
<th>1 = almost never</th>
<th>2 = sometime</th>
<th>3 = fairly often</th>
<th>4 = very often</th>
</tr>
</thead>
</table>

1. In the last month, how often have you been upset because of something that happened unexpectedly?
   - Never
   - Almost Never
   - Sometimes
   - Fairly Often
   - Very Often

2. In the last month, how often have you felt you were unable to control the important things in your life?
   - Never
   - Almost Never
   - Sometimes
   - Fairly Often
   - Very Often

3. In the last month, how often have you felt nervous and “stressed”?
   - Never
   - Almost Never
   - Sometimes
   - Fairly Often
   - Very Often

4. In the last month, how often have you dealt successfully with irritating life hassles?
   - Never
   - Almost Never
   - Sometimes
   - Fairly Often
   - Very Often

5. In the last month, how often have you felt that you were effectively coping with important change that were occurring?
   - Never
   - Almost Never
   - Sometimes
   - Fairly Often
   - Very Often

6. In the last month how often have you felt confident about your ability to handle your personal problems?
   - Never
   - Almost Never
   - Sometimes
   - Fairly Often
   - Very Often

7. In the last month, how often have you felt that things were going your way?
   - Never
   - Almost Never
   - Sometimes
   - Fairly Often
   - Very Often

8. In the last month, how often have you found that you could not cope with all the things that you had to do?
   - Never
   - Almost Never
   - Sometimes
   - Fairly Often
   - Very Often

9. In the last month, how often have you been able to control irritations in your life?
   - Never
   - Almost Never
   - Sometimes
   - Fairly Often
   - Very Often
10. In the last month, how often have you felt that you were on top of things?

   Never          Almost Never          Sometimes          Fairly Often          Very Often

11. In the last month, how often have you been angered because of things that happened that been outside of your control?

   Never          Almost Never          Sometimes          Fairly Often          Very Often

12. In the last month, how often have you found yourself thinking about things that you have to accomplish?

   Never          Almost Never          Sometimes          Fairly Often          Very Often

13. In the last month, how often have you been able to control the way you spend your time?

   Never          Almost Never          Sometimes          Fairly Often          Very Often

14. In the last month, how often have you felt difficulties piling up so high that you could not overcome them?

   Never          Almost Never          Sometimes          Fairly Often          Very Often

Instructions: A number of statements that people have used to describe how they feel are given below. Read the statements below and indicate how you generally feel during a competition or practice by placing the appropriate number next to each item.

1 = Not at all
2 = Somewhat
3 = Moderately so
4 = Very much so

   ___1. I am furious
   ___2. I feel irritated
   ___3. I feel angry
   ___4. I feel like yelling at somebody
   ___5. I feel like breaking things
   ___6. I am mad
   ___7. I feel like banging on the table
   ___8. I feel like hitting someone
   ___9. I feel like swearing
   ___10. I feel annoyed
   ___11. I feel like kicking somebody
   ___12. I feel like cursing out loud
   ___13. I feel like screaming
   ___14. I feel like pounding somebody
   ___15. I feel like shouting out loud

Instructions: A number of statements that people have used to describe how they feel are given below. Read the statements below and indicate how you generally feel during a competition or practice by placing the appropriate number next to each item.

1 = Almost never
2 = Sometimes
3 = Often
4 = Almost always

   ___16. I am quick tempered
   ___17. I have a fiery temper
   ___18. I am a hotheaded person
   ___19. I get angry when slowed down by others’ mistakes
   ___20. I feel annoyed when not given recognition for doing good work
   ___21. I fly off the handle
   ___22. I say nasty things when mad
   ___23. It makes me furious when I am criticized in front of others
24. I feel like hitting someone when frustrated
25. I feel infuriated when I do a good job and get a poor evaluation

A number of statements that people have used to describe themselves are given below. Read the statements below and indicate how you generally react or behave when you feel angry or furious by placing the appropriate number next to each item.

1 = Almost never
2 = Sometimes
3 = Often
4 = Almost always

26. I control my temper
27. I express my anger
28. I take a deep breath and relax
29. I keep things in
30. I am patient with others
31. If someone is annoying, I am apt to tell him or her
32. I try to calm down as soon as possible
33. I pout or sulk
34. I control urges to express angry feelings
35. I lose my temper
36. I try to simmer down
37. I withdraw from people
38. I keep cool
39. I make sarcastic remarks to others
40. I try to soothe angry feelings
41. I boil inside, but don't show it
42. I control my behavior
43. I do things like slam doors
44. I endeavor to become calm again
45. I tend to harbor grudges that I don’t tell anyone about
46. I can stop from losing my temper
47. I argue with others
48. I reduce my anger as soon as possible
49. I am secretly quite critical of others
50. I try to be tolerant and understanding
51. I strike out at whatever is infuriating
52. I do something relaxing to calm down
53. I am angrier than willing to admit
54. I control my angry feelings
55. I say nasty things
56. I try to relax
57. I get irritated a great deal more than people are aware of

Instructions: Please answer the following questions to the best of your ability.

1. How often do you check your Facebook account for updates from friends?
   
   1 2 3 4 5
   Not at all Frequently Very Frequently
   (maybe once a day) (one or more times every hour)

2. How often do you update your status each day?
   
   1 2 3 4 5
   Not at all Frequently Very Frequently
   (maybe once a day) (one or more times every hour)
3. How often do you use Facebook to communicate with others on a given day (using instant messaging, replying to posts, comments on walls, and such)?

- 1: Not all Frequently (maybe once a day)
- 2: Very Frequently (one or more times every hour)

4. How often do you check your Twitter account for updates from friends?

- 1: Not all Frequently (maybe once a day)
- 2: Very Frequently (one or more times every hour)

5. How often do you Tweet each day?

- 1: Not all Frequently (maybe once a day)
- 2: Very Frequently (one or more times every hour)

6. How often do you use Twitter to communicate with others on a given day (using direct messaging, retweeting, and such)?

- 1: Not all Frequently (maybe once a day)
- 2: Very Frequently (one or more times every hour)

**Instructions:** Please answer the following questions to the best of your ability using the following scale:

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>(About once a many times month or less) per day</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

1. I send messages to friends
2. I send chat messages to friends
3. I write on group or event walls
4. I write on friends’ walls
5. I send friend requests
6. I post comments on friends’ status updates, pictures, etc.
7. I update my status
**Instructions:** Please answer the following questions to the best of your ability.

1. Please check all social media sites that you actively use.
   - Facebook
   - Twitter
   - Instagram
   - SnapChat
   - LinkedIn
   - Pinterest

2. Please check which one you use most frequent.
   - Facebook
   - Twitter
   - Instagram
   - SnapChat
   - LinkedIn
   - Pinterest

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**Instructions:** Please answer the following questions to the best of your ability.

1. Overall, **DURING YOUR LIFETIME**, how much have you personally experienced racism, racial discrimination, or racial prejudice?
   - 1: not at all
   - 2: a little
   - 3: some
   - 4: a lot
   - 5: extremely

2. **DURING THE PAST YEAR**, how much have you personally experienced racism, racial discrimination, or racial prejudice?
   - 1: not at all
   - 2: a little
   - 3: some
   - 4: a lot
   - 5: extremely

3. Overall how much do you think racism affects the lives of people of your same racial ethnic group?
   - 1: not at all
   - 2: a little
   - 3: some
   - 4: a lot
   - 5: extremely

4. Think about the people close to you, your family and friends. In general, how much has racism impacted their life experiences?
   - 1: not at all
   - 2: a little
   - 3: some
   - 4: a lot
   - 5: extremely

5. In general, how do you think people from your racial/ethnic group are regarded in the United States?
   - 1: very negatively
   - 2: negatively
   - 3: neutrally
   - 4: positively
   - 5: very positively

6. In general, how frequently do you hear about incidents of racial prejudice, discrimination, or racism from family, friends, co-workers, neighbors, etc.?
   - 1: everyday
   - 2: at least once a week
   - 3: about once or twice a month
   - 4: a few times a year
   - 5: once a year or less

7. In general, how much do you mink about racism?
   - 1: rarely or never
   - 2: a little
   - 3: sometimes
   - 4: often
   - 5: very often

8. In general, how much stress has racism caused you during; your lifetime?
   - 1: none
   - 2: a little
   - 3: some
   - 4: a lot
   - 5: extreme
9. How much stress has racism caused you during the past year?

1 2 3 4 5
none a little some a lot extreme

Instructions: Please answer the following questions to the best of your ability. In day to day life, how often do these things happen to Black people?

1. Black people are treated with less courtesy than other people are.

1 2 3 4 5 6
Never Less than once A few times A few times At least Almost
a year a year a month once a week everyday

2. Black people are treated with less respect than other people are.

1 2 3 4 5 6
Never Less than once A few times A few times At least Almost
a year a year a month once a week everyday

3. Black people receive poorer service than other people at restaurants or stores.

1 2 3 4 5 6
Never Less than once A few times A few times At least Almost
a year a year a month once a week everyday

4. People act as if they think Black people are not smart.

1 2 3 4 5 6
Never Less than once A few times A few times At least Almost
a year a year a month once a week everyday

5. People act as if they are afraid of Black people.

1 2 3 4 5 6
Never Less than once A few times A few times At least Almost
a year a year a month once a week everyday

6. People act as if they think Black people are dishonest.

1 2 3 4 5 6
Never Less than once A few times A few times At least Almost
a year a year a month once a week everyday
7. People act as if they’re better than Black people are.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Never</td>
<td>Less than once a year</td>
<td>A few times a year</td>
<td>A few times a month</td>
<td>At least once a week</td>
<td>Almost everyday</td>
</tr>
</tbody>
</table>

8. Black people are called names or insulted.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Never</td>
<td>Less than once a year</td>
<td>A few times a year</td>
<td>A few times a month</td>
<td>At least once a week</td>
<td>Almost everyday</td>
</tr>
</tbody>
</table>

9. Black people are threatened or harassed.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Never</td>
<td>Less than once a year</td>
<td>A few times a year</td>
<td>A few times a month</td>
<td>At least once a week</td>
<td>Almost everyday</td>
</tr>
</tbody>
</table>

**Instructions:** Please describe an event/situation involving racism that you or someone close to you (like a family member or close friend) experienced in the past. Some examples of racism include: being treated unfairly because of your race; being ridiculed, humiliated, or harassed because of your race; being denied a job, housing, or access to other services because of your race; or observing a situation in which another person of your race was harassed or mistreated because of their race. These are just a few examples of how you or someone close to you might experience racism. It would be impossible to list all of the ways in which a person can experience racism, so you must decide if an event/situation happened to you because of your race. When describing your experience with racism, please provide as much detail as possible.

Use this space to describe the event that you will be thinking about while completing this survey.

**Instructions:** Please state the degree to which you found your experience with racism to be stressful by drawing a circle around the number that best describes you.

1. **On a scale from 1 to 7, I would describe my experience with racism as...**

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all stressful</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extremely stressful</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Instructions:** Answer each question by marking an “X” in the space above the statement that best describes your experience.

2. *In the days/weeks after my experience with racism, I thought about it*

<table>
<thead>
<tr>
<th>Not at all</th>
<th>Once weekly</th>
<th>2-3 times a week</th>
<th>3 or more times a week</th>
<th>Once a day</th>
<th>2-3 times a day</th>
<th>More than 3 times a day</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. *Whenever I thought about my experience with racism, I would think about it for*

<table>
<thead>
<tr>
<th>Did not think about it</th>
<th>Less than 1 minute</th>
<th>1-5 minutes</th>
<th>15-20 minutes</th>
<th>20 minutes or more</th>
<th>Less than an hour</th>
<th>Could not stop thinking about it</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. *In the days/weeks after my experience with racism, I continued to think about it for*

<table>
<thead>
<tr>
<th>Did not think about it</th>
<th>Less than 7 days</th>
<th>7-30 days</th>
<th>1-2 months</th>
<th>2-5 months</th>
<th>6-9 months</th>
<th>I still think about it</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

5. *I would think about my experience with racism even when I didn’t mean to*

<table>
<thead>
<tr>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Very Often</th>
<th>All the time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Instructions:** Please state the degree to which you agree or disagree with each item by drawing a circle around the number that best describes you.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2 3 4 5 6 7</td>
</tr>
</tbody>
</table>

6. *Black people have always had to deal with these kinds of events/situations, so my experience with racism was something I could manage*

7. *At the time the event/situation occurred, I felt prepared to deal with it*

8. *At the time the event /situation occurred, I was able to think of ways to deal with it*

9. *I felt I had what I needed to deal with the*
10. When I am around White people, I expect them to say or do something racist
   1 2 3 4 5 6 7

11. I believe that most Black people will experience some form of racism in the future
   1 2 3 4 5 6 7

12. I know that if I go where there are mostly White people, there is a good chance I will experience racism
   1 2 3 4 5 6 7

13. I believe there is a good chance that I will experience racism in the future.
   1 2 3 4 5 6 7

14. I can feel my hands start to shake whenever I think I am about to experience racism.
   1 2 3 4 5 6 7

15. I get chest pains whenever I think I am about to experience racism.
   1 2 3 4 5 6 7

16. My hands (or other body parts) sweat whenever I think I am about to experience racism.
   1 2 3 4 5 6 7

17. I get a lump (or dryness) in my throat whenever I think I am about to experience racism.
   1 2 3 4 5 6 7

**Instructions:** Please answer the following questions to the best of your ability.

1. How old are you? _______ (years)

2. How would you describe yourself?
   a. Straight/Heterosexual
   b. Bisexual
   c. Gay/Lesbian
   d. Unsure
   e. Other (specify) ____________

3. What is your education level?
   a. Less than a high school diploma
   b. High school diploma
   c. Technical or vocational training
   d. Some college
   e. Associates degree
   f. Bachelor’s degree
   g. Master’s degree
   h. Doctorate
4. Are you currently enrolled as college or university student?
   1. Yes
   2. No

5. If you are currently a college or university student, what type of college/university do you attend?
   a. 4 year university or institution
   b. 2-year university or college
   c. Online university

6. If you are currently a university college student, what type of college or university do you attend?
   a. Public
   b. Private
   c. N/A

7. Do you attend a historically black college or university?
   a. Yes
   b. No

8. What is your employment status?
   a. Full time employment
   b. Part-time employment
   c. Unemployed and looking
   d. Unemployed and not looking
   e. Homemaker
   f. Disability Benefits
   g. Retired

9. How do you self-identify?
   a. Male
   b. Female
Morgan Lindsey Maxwell  
6732 Constitution Ln. • Charlotte, NC 28210 • (704) 807-4810 • maxwellml@vcu.edu

**HIGHLIGHTS**

- Over five years of experience designing, planning, executing, and analyzing results of health research both domestically and abroad.
- Trained facilitator of risk reduction (RR) evidenced-based interventions (EBIs) (e.g., NIA).
- Managed recruitment of hundreds of participants for EBIs for a federally funded grant.
- Skilled presenter of prevention research in scholarly conference and community settings.
- Well-versed and trained in the application of social psychological theories in health research (e.g., planned behavior, attitudes, health beliefs, and social cognitive).
- Co-authored several evaluative reports and published scholarly articles and book chapters on health research.
- Adaptable to diverse environments and skilled in cultural competency.
- Proficient in qualitative and quantitative data analysis and research software (i.e., ATLAS.ti, Nvivo, SPSS).

**EDUCATION**

**August 2011-Present | Virginia Commonwealth University, Richmond, VA**
Social Psychology Doctoral Program

**May 2013 | M.S., Virginia Commonwealth University, Richmond, VA**
Psychology  
GPA: 3.93/4.0

**May 2010 | M.A., Vanderbilt University, Nashville, T.N.**
Latin American Studies  
Major: Brazilian Portuguese  
Minor: History  
GPA: 3.82/4.0

**May 2008 | B.S., Howard University, Washington, D.C.**
Major: Psychology  
Minor: Biology  
Institutional Honors: Magna Cum Laude, Phi Beta Kappa  
GPA: 3.72/4.0

**RESEARCH/GRANT FUNDED ACTIVITIES**

**Boren Fellow**  
9/2014 to 3/2015  
National Security Education Program  
Salvador, Brazil

- Conducted qualitative interviews with key NGO personnel about HIV prevention efforts in Salvador, Brazil using exploratory and descriptive research methods.
  - Established contact with health ministries and local HIV prevention NGOs in the
Nazaré community.
- Developed research and interview questions
- Conducted interviews to explore the influence of specific Brazilian cultural factors on: 1) dissemination of HIV transmission knowledge 2) distribution of free condoms and 3) accessibility of HIV testing.
- Studied Brazilian Portuguese at Diálogo, a language school in Salvador, Bahia, and achieved advanced fluency.

Global Bridges Scholar
7/2013 to 8/2013
Department of Social and Behavioral Health
Virginia Commonwealth University
Durban, South Africa
- Conducted qualitative participatory action research (PAR) utilizing contemporary methodologies (e.g., Photovoice) with adolescent and underserved populations.
- Evaluated the capacity of a community health clinic to provide adequate services to its clientele.
  - Developed research and interview questions
  - Conducted partnered interviews with community members
  - Analyzed data and shared results with the community
  - Published findings in Qualitative Research (see publications)

Research Associate
8/25/11 – 5/12/14
Center for Cultural Experiences in Prevention, Virginia Commonwealth University
Richmond, V.A.
- Researched substance abuse and health disparities (e.g., HIV/AIDS epidemic, alcohol abuse, and obesity) among high-risk populations for manuscript and educational program development.
  - Conducted extensive literature reviews
  - Gathered national and local statistical data
  - Disseminated findings and data at university health “edu-tainment” (educational-entertaining) events
- Supported recruitment and evaluation protocol for Substance Abuse and Mental Health Services (SAMHSA) grant.
  - Managed recruitment of over 500 behavioral intervention participants and health-event attendees
  - Facilitated the delivery of RR EBIs (i.e., SISTA, NIA, and Safe in the City) to over 200 high-risk participants (e.g., minority heterosexual adults and MSM)
  - Assisted collection and analysis of pre and post behavioral intervention data
  - Supervised over 30 undergraduate research assistants
- Presented substance abuse and HIV/AIDS research at several health conferences (e.g., APHA).
  - Developed and submitted conference abstracts
  - Organized and developed presentation materials (e.g., posters, PowerPoint presentations)
Presented findings to national and local scientific communities

  - Reviewed and edited book chapters
  - Contacted third party members for licensing agreements
  - Corresponded with SAGE editors to develop final product

Undergraduate Research Supervisor and Mentor
8/2012 to 5/2014
Virginia Commonwealth University
Richmond, VA

- Organized and executed undergraduate research training sessions
- Supervised, organized, and assisted the research and projects of over 30 VCU undergraduate students
- Conceptualized, organized, and executed joint graduate and undergraduate student workshops, e.g., “How to Get into Graduate School” and “How to Develop a CV”.
- Mentored undergraduate students in their academic development and on their graduate school endeavors.

Assistant Project Manager
1/2013 to 3/2013
Office of Women’s Health
Richmond, VA

- Conceptualized, developed, and executed art competition for middle and high school and college students to raise HIV/AIDS awareness through visual messages for G.O. the M.I.L.E., a grant program funded by the Office of Women’s Health and designed to celebrate National Women and Girls HIV/AIDS awareness day (i.e., encourage testing, share transmission information, and highlight the high risk of African American women and girls).
  - Conceptualized and developed the purpose of the competition, rules, and eligibility requirements
  - Recruited over 40 student participants from local Richmond schools and community centers
  - Organized the collection and delivery of artwork
  - Organized the presentation of artwork to the Richmond community on National Women and Girls HIV/AIDS awareness day

Psychology Undergraduate Advisor
8/2011 to 8/2012
Virginia Commonwealth University
Richmond, VA

- Assisted VCU students in selecting and scheduling classes to complete departmental and University requirements for the Psychology major.
- Employed a full understanding of the University’s rules and departmental requirements to
advise students on issues concerning financial aid, academic progression, internship opportunities, and transfer inquiries.

• Addressed contextual or personal factors that contributed to or hindered students’ academic progress.

**Research Assistant**
7/2010 to 11/2010
University of North Carolina at Charlotte
Charlotte, NC
• Examined the community health profiles of North Carolina and Florida counties using risk adjustment models.
  o Disaggregated data sets and conducted multiple linear regression analyses with Excel, STATA, and SPSS programs.
  o Measured the efficacy of health ranking systems by comparing observed and expected mortality rates and computing Kendall Ranking Correlations analyses.
  o Designed tables and scatter plot graphs and cumulated results to create a final project.

**Independent Researcher**
6/2009 to 8/2009
Vanderbilt University
Salvador, Brazil
• Awarded university funding after developing a research project proposal about social inequality and education in Brazil
  o Conducted historical research and surveyed the Brazilian public opinion of affirmative action policies in Brazilian higher education
  o Gathered data by developing survey questions and interviewing over 20 participants on racial/social quotas
  o Combined interviews and research and created a documentary on the implementation of affirmative action in Brazil—currently cataloged at Vanderbilt University's Central Library and available on Youtube: [http://www.youtube.com/watch?v=rpPcfVINVYU](http://www.youtube.com/watch?v=rpPcfVINVYU) [http://www.youtube.com/watch?v=2MvMoxao9TM&feature=relmfu](http://www.youtube.com/watch?v=2MvMoxao9TM&feature=relmfu)
    ▪ Translated the responses
    ▪ Edited the material
    ▪ Presented documentary at the 44th (2012) Annual Association of Black Psychologists (ABPsi) International Convention in Los Angeles, CA. (see conferences)

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**LECTURING/TEACHING EXPERIENCE**

**Lecturer**
6/2014 to 7/2014
PSYC 412 Health Psychology
Department of Psychology
Virginia Commonwealth University
Richmond, VA
- Taught principal theories, concepts, and methods of health psychology.

**Guest Lecturer**
10/21/2013
PSYC 322 Personality and Behavior of the African American
Department of Psychology
Virginia Commonwealth University
Richmond, VA
- Lectured on existing and developing colorism research, in particular findings related to health research.

**Lecturer**
5/2013 to 7/2013
PSYC 321 Social Psychology
Department of Psychology
Virginia Commonwealth University
Richmond, VA
- Taught the principal theories, concepts, and methods of social psychology

**Guest Lecturer**
3/28/2013
PSYC 322 Personality and Behavior of the African American
Department of Psychology
Virginia Commonwealth University
Richmond, VA
- Lectured on existing and developing colorism research, including personal colorism research.

**Invited Community Lecturer**
3/1/2013
Community Lecture Series on African American Studies
Department of African American Studies
Virginia Commonwealth University
Richmond, VA
- Offered a lecture to local Richmond, VA community members on the phenomenon of colorism in the Black community, emphasizing specifically: 1) colorism research, 2) the social and psychological implications of skin tone biases, and 3) potential community solutions for combating colorist ideologies

**Guest Lecturer**
7/31/2012
PSYC 308 Stress and Its Management
Department of Psychology
Virginia Commonwealth University
Richmond, VA
• Lectured on stress related experiences with racial discrimination, using personal narratives and encounters abroad as examples.

Guest Lecturer
9/12/2012
PSYC 491 Cross Cultural Psychology
Department of Psychology
Virginia Commonwealth University
Richmond, VA
• Lectured on the manifestation of colorism around the world: including India, Asia, Jamaica, Africa, and the United States

Guest Lecturer
9/24/2012
PSYC 322 Personality and Behavior of the African American
Department of Psychology
Virginia Commonwealth University
Richmond, VA
• Lectured on the attitude and behavioral implications of the internalization of colorism within the African American community.

Volunteer Teacher
7/2007 to 8/2007
http://www.globallearninginternational.org/programs/
Global Learning
San Jorge, Nicaragua
• Mastered and prepared lessons developed by Global Learning
• Individually taught students geology, art, history, and English using GL student-focused techniques: including group teachings, partner lessons, and student-choice
• Worked with foreign and local volunteers to plan class activities

Volunteer ESL Teacher
7/2006 to 8/2006
http://layc-dc.org/
Latin American Youth Center
Washington, DC
• Assisted local Latin American students studying at The Next Step Public Charter School with their acquisition of the English language
• Monitored the classrooms and provided additional help for those students in need
• Translated work material and served as a secondary instructor

Volunteer English Teacher
6/2006 to 7/2006
http://www.nequeyneque.org/volunteer.html
Academia Latinoamericana de Español
Quito, Ecuador
• Partnered with the social project "Neque y más neque" to teach underprivileged Afro-Ecuadorian children English and mathematics
• Used diverse and group related activities to promote teamwork and cultural exchange
• Utilized Spanish-speaking skills to connect with the children and to provide tutorial lessons

PROFESSIONAL EXPERIENCE

Youth Sexual Education Facilitator
7/17/2013
Camp DIVA
Richmond, VA
• Educated African American girls ages 11-14 in a number of basic sexual education concepts including: 1) the prevalence of HIV/AIDS and STDS in the African American community 2) risk reduction and prevention strategies 3) condom-use efficacy and 4) partner communication efficacy.

Workshop Evaluator
3/2013 to 4/2013
Crater Health District
Petersburg, VA
• Evaluated the effectiveness of a cultural competency workshop to increase Crater Health District workers’ perceptions of cultural competency and intended behavioral changes.
  o Attended and observed the workshop
  o Developed evaluation questions
  o Interviewed and surveyed workshop attendees
  o Analyzed qualitative and quantitative data
  o Presented findings in evaluation report (see publications)

Program Evaluator
12/2012 to 1/2013
Washington, DC
American Psychological Association (APA)- Office of Minority and Ethnic Affairs (OEMA)
• Evaluated the effectiveness of two OEMA initiatives designed to improve ethnic minority representation in academia.
  o Employed statistical and qualitative analyses to determine if programs met targeted goals and objectives
  o Conducted literature review
  o Co-wrote evaluation report

Girl Empowerment Coalition Coordinator and Facilitator
10/2012 to 5/2014
Richmond, VA
• Coordinated and facilitated quarterly meetings in which leaders and members of local African American girl empowerment organizations convened to discuss ideas, network, and collaborate
  o Recruited local NGOs to participate
Established meeting agendas
Served as meeting liaison

**Graduate Student-Faculty Liaison**
8/2012 to 5/2013
Department of Psychology
Virginia Commonwealth University
Richmond, VA
- Served as liaison between graduate students and faculty members in the Social Psychology program
  - Assisted in the coordination of prospective student visits

**Think Tank Facilitator**
12/9/2012
CAMP DIVA
Richmond, VA
- Facilitated the conceptualization, development, and implementation of key projects related to CAMP DIVA, a non-profit organization dedicated to improving the lives of African American girls.
  - Designed think tank group and individual activities to effectively and efficiently generate innovative ideas
  - Assisted the think tank in extracting the most viable ideas for future development
  - Supported the think tank in identifying next steps for their projects.

**APPLIED HEALTH EXPERIENCES**

**Volunteer Volleyball Instructor**
7/19/2013
Camp DIVA
Richmond, VA
- Offered free beginner volleyball lessons to CAMP Diva attendees.
  - Developed activities
  - Served as lead instructor

**Volunteer Volleyball Instructor**
6/2013 to 7/2013
Coventry Gardens Community Center
Richmond, VA
- Offered free beginner volleyball lessons to underserved boys and girls ages 10-15.
  - Developed activities
  - Served as lead instructor

**Volunteer Volleyball Instructor**
2/2011 to 5/2011
West Charlotte Recreational Center
Charlotte, NC
• Developed a free volleyball instructional program for underserved adolescents in the neighborhood surrounding the West Charlotte Recreational Center.
  o Developed activities
  o Served as lead instructor

WORKSHOP ENGAGEMENTS

Cultural Competency Workshop Training Facilitator
3/8/2013
Crater Health District
Petersburg, VA
• Assisted in conceptualizing, organizing, and executing a professional workshop to improve the understanding of and the implementation of skills related to cultural competency.
  o Facilitated experiential activities directed towards self and peer learning to promote cultural competency
  o Fostered skills for developing greater cultural competency.

Workshop Speaker
8/25/2012
10th Annual Happily Natural Day
Richmond, VA
• Conducted a workshop on skin color and hair texture perceptions within the Black community
  o Developed workshop activities
  o Developed and presented PowerPoint presentation
  o Facilitated “color circle”, in which participants discussed personal issues with colorism

Social Change Workshop Facilitator
8/17/2012
Richmond, VA
• Facilitated social change workshop at Girls Are Talking 10th Annual Conference
  o Assisted young African American women in developing social change ideas for their communities.

HIV/AIDS 101 Workshop Facilitator
8/7/2012
Richmond, VA
• Facilitated an HIV/AIDS 101 session for Camp Diva, a nonprofit organization that provides summer and after school social and developmental programs for girls ages 11-17.
Taught RR and prevention strategies, transmission information, and condom negotiation skills to participants.

**PUBLICATIONS**

**Peer Reviewed Articles**


**Book Chapters**


Other Publications and Technical Reports


**SPEAKING ENGAGEMENTS**

2014 African Student Union HIV/AIDS Awareness Event
Virginia Commonwealth University
Richmond, VA

• Keynote speaker on the global reach, effect, and prevention of HIV/AIDS

**TRAINING AND CERTIFICATION**

• Trained and certified to facilitate SISTA, an HIV behavioral intervention program designed for African American women between 18-29 years old.
• Trained and certified to facilitate NIA, an HIV behavioral intervention program designed for African American men who have sex with women.

**CONFERENCES**


**POSTER PRESENTATIONS**


* Division 45 (APA Culture, Ethnicity, and Race) Award Recipient


**SKILLS**

- Excellent computer skills (e.g., SPSS, Microsoft Excel, Microsoft Word, Microsoft Power Point)
- Strong interpersonal skills
- Fluent in Portuguese:
  - Reading/Writing: Superior
  - Speaking: Advanced
- Functionally fluent in Spanish:
  - Reading/Writing: Advanced
  - Speaking: Intermediate
- Firm understanding of teamwork
- Strong leadership skills
- Highly culturally competent

**HONORS/AWARDS**

- Boren Fellowship Recipient, 2014-2015
- VCU Psychology Black History In the Making Award, 2014
- VCU Psychology Graduate Student Travel Award, 2014
- Honorable Mention Ford Minority Fellowship, 2013
- FIPSE-CAPES Summer Program scholarship recipient- Salvador Brazil, 2009
- Vanderbilt University FLAS Academic Year Fellowship recipient, 2008-2010
- MEAC Woman of Year Runner-Up, 2008
- Howard University Woman Athlete of the Year, 2008
- Howard University Coca-Cola Community Service All-American, 2008
- Women's Volleyball: 4-year letter winner and starter
- Captain, 2006-2008
- US Airways Education Foundation Scholarship recipient, 2006
- Howard University Athletic Scholarship recipient, 2004-2008