Exploring Barriers, Beliefs, Knowledge, Experiences, and Emotions Related to Yoga Practice Among a Racially and Ethnically Diverse Sample

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EXPLORING BARRIERS, BELIEFS, KNOWLEDGE, EXPERIENCES, AND EMOTIONS RELATED TO YOGA PRACTICE AMONG A RACIALLY AND ETHNICALLY DIVERSE SAMPLE

By

Denise Simão Marques

A DISSERTATION

Submitted to the Faculty of the University of Miami in partial fulfillment of the requirements for the degree of Doctor of Philosophy

Coral Gables, Florida

August 2018
UNIVERSITY OF MIAMI

A dissertation submitted in partial fulfillment of
the requirements for the degree of
Doctor of Philosophy

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ETHNICALLY DIVERSE SAMPLE

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The standard approach to ameliorating mental health difficulties in the United States may not be effective for racial and ethnic minority populations, as these individuals are more likely than non-Latino/a White individuals to prematurely withdraw from mental health services (Chow, Jaffee, & Snowden, 2003; Miranda, Azocar, Organista, Dwyer, & Arean, 2003). Yoga may be a viable intervention to address the large disparity in mental health services provided to these populations, as it is effective in ameliorating mental health difficulties across racial and ethnic populations and can be practiced in the non-medical settings. However, research suggests that racial and ethnic minority groups are significantly less likely than non-minority groups to practice yoga (Olano, Kachan, Tannenbaum, Mehta, Annane, & Lee, 2015).

To elucidate underlying factors influencing the gap in yoga practice between racial and ethnic minorities and non-Latino/a White individuals, I utilized a convergent parallel mixed method design to examine holistic beliefs, beliefs about yoga, knowledge of yoga, and barriers to yoga across racial and ethnic populations. The results reflect the responses of 458 participants recruited online through Amazon Mechanical Turk and 16 individuals recruited locally for individual interviews. The results indicate that
individuals across racial and ethnic groups generally maintain favorable beliefs about yoga and that the discrepancy in yoga practice could be better explained by barriers to yoga experienced by racial and ethnic minority groups. Limitations in knowledge of yoga, exposure to yoga, access to yoga, and contextual resources as well as apprehension to yoga culture emerged as important barriers to yoga practice. Research and clinical implications are discussed.
ACKNOWLEDGEMENTS

My dissertation experience has been a reflective journey and I have received more than I could ever give. I am grateful to the participants who took their time to discuss yoga and who in many instances opened up about their personal journeys. This undertaking would not have been possible without the support of my co-chairs Dr. Lydia Buki and Dr. Scot Evans. Their guidance and hands on support was vital throughout this experience. Moreover, their openness and encouragement to pursue my interests allowed me to move forward feeling confident. I am also very grateful to Dr. David Lee and Dr. Lissette Perez for their contributions and support.

I am filled with gratitude toward my family, as they have always encouraged me in my pursuits. They instilled in me the foundation to work hard but most importantly, to make positive contributions to others, even if it is in simply being kind to a stranger. I have watched them sacrifice and work relentlessly for our family all the while caring for others along the way. This example has inspired and given me strength, as I know that I am cut from the same cloth. Though our family may be small in this country, I have felt a stadium of cheers, support, and encouragement along the way.

The support of my friends and colleagues has been unparalleled. From discussing analyses to simply taking walks together, the support has been vital to my success. Thank you Liz, Raha, Rashad, Megan, Emaan, John, Susie, Brenda, Ronnie, Natalie, Lauren and all of the others that shined their light along the way. Peter, you also deserve a degree for keeping me well fed, grounded, and dancing along the way. Our laughing and adventures brought energy to my work while keeping me centered.
Thank you to the organizations that saw value in and contributed to my project. Lastly, I am grateful to yogis that have shared yoga with the world with the intention of cultivating peace.
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CHAPTER 1
INTRODUCTION

Psychological distress is pervasive, as it is estimated that 25% percent of individuals within the United States (U.S.) suffer from some form of mental health difficulty (CDC, 2011). Specifically, research suggests that 5% of individuals within the U.S. suffer from depression, and 18% have experienced anxiety within the last 12 months (Kessler, Chiu, Demler, & Walters, 2005). Moreover, 40% of individuals within the U.S. have reported feeling heightened psychological distress within the last 30 days (Kessler et al., 2005). However, life circumstances associated with mental health concerns differ across individuals. For instance, research suggests that racial and ethnic minority populations are at higher risk than the majority population for developing mental health difficulties (CDC, 2013). More specifically, racial and ethnic minority populations generally have reported more stressors of daily living as well as fewer resources to address these difficulties compared to non-Latino/a White individuals (CDC, 2013).

The standard approach to ameliorating psychological difficulties and stressors within the conventional medical system in the U.S. is to seek psychological intervention. Researchers and healthcare professionals typically recommend psychotherapy and psychotropic medication when necessary (Roth & Fonagy, 2006). However, research suggests that this approach may not be effective for racial and ethnic minority populations (Miranda, Azocar, Organista, Dwyer, & Arean, 2003). In fact, racial and ethnic minorities are more likely than non-Latino/a White individuals to prematurely withdraw from mental health services, leaving a large disparity in mental health services provided to these populations (Chow, Jaffee, & Snowden, 2003; Fortuna, Alegria, & Goa,
2010; Lester, Artz, Resick, & Young-Xu, 2010). In addition to psychotherapy and
psychotropic medication, some professionals also recommend utilizing complementary
and alternative medicine (CAM) to address the mental health difficulties of individuals in
distress (e.g., Macy, Jones, Graham, & Roach, 2015; Uebelacker et al., 2010.) CAM
encompasses a wide range of modalities, such as yoga, to help ameliorate individuals’
health difficulties and improve their quality of life (NCCIH, 2007). CAM has become
increasingly prevalent within lay and healthcare settings within the last 15 years (Clarke
& NCHS, 2015; Su & Li, 2011). Although those who espouse conventional medicine
have historically questioned the legitimacy of CAM practices, these practices have
garnered attention from researchers and practitioners of conventional medicine more
recently, as they have been found to be helpful for a variety of physical and psychological
difficulties (e.g., Meibert, Michalak, & Heidenreich, 2011; Riley & Park, 2014). Some
proponents of CAM have argued that some of these practices can be equally as effective
as conventional treatments with fewer deleterious side effects (Kayne, 2009).

The extensive research conducted on CAM has supported the comprehensive
health benefits of practices such as yoga (e.g., Meibert et al., 2011; Riley & Park, 2014).
Yoga is a multifaceted philosophy that consists of multiple “limbs” including, but not
limited to, popularized practices such as asana (i.e., body positions) and pranayama (i.e.,
breathing exercises; Iyengar, 2007). Yoga practice has been linked to enhanced well-
being such as reduced stress, emotional stability, and a sense of equanimity (Riley &
Park, 2015; Smith, Greer, Sheets, & Sheets, 2011). Beyond benefits in everyday living,
yoga has been shown to be effective in ameliorating psychological difficulties (e.g., Meibert et al., 2011; Ruiz, 2010). For example, it has been found to improve mental health difficulties such as depression and anxiety with little to no deleterious side effects (Cramer, Launch, Langhost, & Dobos, 2013).

Despite the health benefits of yoga and the relative ubiquity of yoga classes throughout the U.S., research suggests that individuals from racial and ethnic minority groups are significantly less likely to practice yoga than individuals from non-minority groups (Olano, Kachan, Tannenbaum, Mehta, Annane, & Lee, 2015). In a study of 69,149 participants, researchers found that non-Latino/a White individuals endorsed utilizing yoga significantly more than their Latino/a and Black counterparts (Olano et al., 2015). More specifically, non-Latino/a White individuals were two times more likely than Latino/a individuals to practice yoga. Similarly, non-Latino/a White individuals were nearly two times more likely than Black individuals to practice yoga. The fact that certain groups are less likely to engage in yoga practice than others is concerning, as research has demonstrated that the benefits of yoga are not unique to non-Latino/a White individuals (e.g., Burnett-Zeigler, Schuette, Victorson, & Wisner, 2016). In fact, in a comprehensive review of mind-body studies, researchers found yoga to be beneficial among racial and ethnic minorities for a variety of difficulties (e.g., depression, pain) and for improving quality of life (Burnett-Zeigler et al., 2016). Despite the research demonstrating that yoga can be beneficial across racial and ethnic groups, there is limited research exploring factors associated with lower levels of engagement in yoga practice within racial and ethnic minority populations. Instead, the research on populations who practice yoga has been largely descriptive and focused on sociodemographic variables.
associated with higher levels of yoga practice. Information about people’s attitudes, beliefs, emotions, knowledge, and behaviors, all components of health literacy (Buki, Yee, Weisterschan, & Lehardy, 2016), has the potential to shed light on facilitative factors and barriers that contribute to individuals’ choice to engage in a healthy practice such as yoga.

Considering that yoga can be effective in improving the health outcomes of racial and ethnic minority as well as majority populations, it is important to understand the factors underlying the discrepancy in yoga practice between these populations. For example, it would be helpful to understand whether there is a difference in barriers to yoga practice across racial and ethnic populations. Identifying potential differences in barriers to yoga practice could inform ways to ensure more equitable access to yoga. It would also be helpful to understand whether there is a difference in beliefs about yoga and holistic practices between racial and ethnic minority and non-minority groups. Beliefs are understood as the various attributes, such as traits, properties, and qualities that an individual links to an object such as a person, group of people, institution, organization, behavior, or policy (Eagly & Chaiken, 1993; Fishbein & Ajzen, 1975). Developing an understanding of whether there is a difference in beliefs about yoga and holistic practices could help to clarify potential unhelpful biases regarding yoga practice.

Similarly, it would be helpful to understand whether there is a difference in knowledge about yoga between racial and ethnic minority and non-minority populations. Knowledge is understood as a justified true belief that is verifiably true (Klein, 1971). Unlike beliefs, knowledge is rooted in facts and can be tested and validated. Identifying potential differences in knowledge can help professionals to develop interventions such as
educational materials to better inform individuals about yoga. Exploring emotions and experiences of yoga in both racial and ethnic minority and non-minority populations in an open-ended manner would also have the potential to enhance our understanding of the difference in yoga practice between these populations. For example, exploring emotions might expose more visceral reactions and responses to yoga that are less constrained by cognitions. Exploring emotions related to yoga could enhance our understanding of the gap in yoga practice, as research has demonstrated that discrete emotions are related to the decision-making process (Angie, Connolley, Waples, & Kligyte, 2011). Overall, developing a better understanding of factors underlying the difference in yoga practice between racial and ethnic minority and non-minority groups could help to eventually address the gap in practice to ensure that all racial and ethnic groups have the opportunity to benefit from yoga practice.

Although researchers have attempted to uncover factors underlying differences in yoga practice between racial and ethnic groups, this research has numerous limitations. For example, in the only study exploring the association between sociodemographic variables and barriers to yoga practice, the sample consisted of 79% of non-Latino/a White individuals, limiting the researchers’ ability to statistically compare outcomes across racial and ethnic groups in this quantitative study. There is also limited research exploring whether there are differences in overall holistic beliefs between racial and ethnic groups. This gap in the literature is significant, as researchers have found in a quantitative study that espousing holistic and spiritual beliefs (e.g., a belief in the mind-body connection) is predictive of CAM usage (Testerman, Morton, Mason, & Ronan, 2004). In other words, it is plausible that a difference in holistic beliefs can help to
explain the difference in yoga practice between racial and ethnic minority and non-minority groups. Similarly, studies exploring differences in yoga practice between racial and ethnic minority and non-minority groups have not examined differences in knowledge of yoga. However, it is crucial to examine participants’ knowledge of yoga in studying practice behaviors, as research has demonstrated a relation between health knowledge and health behavior (Williams & Jeanette, 2016). Although this relationship is supported by research, it is also important to note that knowledge about health practices does not always lead to congruent healthy behaviors (Rimal, 2000).

In addition to limitations in quantitative research, there is also a dearth of qualitative research examining emotions toward, and experiences of, yoga within racially and ethnically diverse samples. To my knowledge, qualitative inquiry exploring emotions towards, experiences of, as well as barriers to yoga practice across racial and ethnic groups has not been conducted. Qualitatively exploring these factors can help in developing a comprehensive and nuanced understanding of the gap in yoga practice between non-Latino/a White individuals and racial and ethnic minorities. In sum, the extant literature is lacking in multiple dimensions such as in the racial and ethnic diversity of the samples and the measures utilized. As such, this limited research highlights the importance of conducting a multifaceted study examining barriers, beliefs, knowledge, experiences, and emotions related to yoga practice within a racially and ethnically diverse sample.

Statement of the Problem

Despite the effectiveness and increasing use of some CAM practices such as yoga, there is a significant difference in uptake of yoga practice between non-Latino/a
White individuals and racial and ethnic minorities in the U.S. (Olano et al., 2015). Beyond research highlighting this difference, there is limited research focused on examining the underlying factors that may contribute to the differential outcomes. Considering that yoga can help ameliorate psychological difficulties and increase well-being across racial and ethnic groups, it is imperative to identify these factors. Moreover, racial and ethnic minority populations are at risk for poorer health outcomes and are often limited in resources, such as health insurance and access to health care, to address mental health and other health concerns (Barr, 2014; CDC, 2013; National Center for Health Statistics, 2015). Therefore, having access to a tool that promotes mental and physical health and does not require health insurance or a large investment of resources could help to enhance the overall health of racial and ethnic minority populations. The effectiveness of yoga in ameliorating mental health difficulties and the nonmedical settings in which yoga is practiced, suggests that it may be more accessible to ethnic and racial minority communities than more traditional health care approaches. Moreover, yoga can be integrated in daily life without professional intervention and can be less expensive than conventional medical care (Aboagye, Karlsson, Hagberg, & Jenson, 2015). Thus, elucidating potential underlying factors influencing the gap in yoga practice between racial and ethnic minorities and non-Latino/a White individuals is crucial. This information could be used by researchers and health care providers to develop interventions that ameliorate barriers to yoga practice for racial and ethnic minority
populations. In turn, addressing these barriers could promote yoga uptake among racial and ethnic minority populations, ultimately contributing to higher levels of well-being among the U.S. population.

**Purpose of the Study**

The purpose of this exploratory study is to elucidate potential psychosocial, financial, and cultural factors underlying the differences in yoga practice between non-Latino/a White individuals and ethnic and racial minority populations. For the purposes of this study, I will adopt the definition of yoga that is most commonly utilized in research, which includes the asana (i.e., body positions), dhyana (i.e., meditation), and pranayama (i.e., breathing exercises) aspects of yoga. Understanding the gap in yoga practice requires a multidimensional approach. As there are no theoretical frameworks for understanding this gap, it is important to explore barriers, beliefs, knowledge, experiences, and emotions related to yoga practice across ethnic and racial populations, as well as how these differ for both racial and ethnic minorities and non-minorities.

Given the limited research on this topic, I will conduct a mixed method study to uncover factors that may account for the observed differences in yoga practice. A mixed method approach will provide the opportunity to extend the literature in this understudied area. Quantitative methods will help assess any group differences, and qualitative methods will help bring to light barriers, beliefs, knowledge, experiences, and emotions related to yoga practice through analysis of personal narratives.

**Research Aims**

For the quantitative portion, my research questions are (a) Do beliefs about yoga, holistic beliefs, knowledge of yoga, and barriers to yoga vary by race and ethnicity?, (b)
Assuming there is a relationship between race and ethnicity and beliefs about yoga, do knowledge of yoga and holistic beliefs moderate the relationship between race and ethnicity and beliefs about yoga? Given the dearth of literature on yoga practice across racial and ethnic populations, I have not identified hypotheses for all of the aforementioned research aims. However, considering that racial and ethnic minorities generally practice yoga significantly less than non-Latino/a White individuals (Olano et al., 2015), I expect for racial and ethnic minorities to identify more barriers to yoga practice. For the qualitative portion, my research question is (a) How do participants from various racial and ethnic groups describe their emotions, experiences, and barriers related to yoga?
In this chapter, I will review the literature relevant to utilizing yoga as a complement and alternative to conventional mental health treatment. I will first begin with an overview of mental health distress in the U.S. followed by mental health and treatment disparities between non-Latino/a White individuals and racial and ethnic minorities. Next, I will introduce complementary and alternative medicine (CAM) as one vehicle with the potential of addressing these mental health disparities. In order to focus the scope of my study, I specifically will concentrate on yoga as a potential avenue to address mental health disparities. To highlight the potential of yoga as a complement to conventional mental health care, I will review the literature on the effectiveness of yoga in addressing psychological distress. Next, I will characterize the typical yoga practitioner and highlight the discrepancy in yoga practice across racial and ethnic groups. Specifically, I will delineate the factors associated with yoga practice and also emphasize the gaps in the literature, suggesting that it is imperative to systematically identify factors underlying the differences in yoga practice between non-Latino/a White individuals and racial and ethnic minorities. This information could help to inform researchers and clinicians on interventions to address this gap in yoga practice, which could ultimately help to address mental health disparities among racial and ethnic minority populations.

**Mental Health Distress Within the United States**

Some scholars describe mental health disorders as an epidemic, considering that 25% percent of U.S. Americans suffer from some form of mental health difficulty (CDC,
In 2015, 17% of adults in the U.S. were diagnosed with a mental illness, and of these individuals, 4% were diagnosed with a severe mental illness (Center for Behavioral Health Statistics and Quality, 2016). Specifically, research suggests that 9% of adults in the U.S. suffer from a mood disorder (e.g., major depressive disorder, bipolar disorder) and 18% have experienced anxiety (e.g., panic disorder, generalized anxiety disorder) within the last 12 months (Kessler, Chiu, Demler, & Walters, 2005). In one comprehensive study, researchers found that of individuals experiencing a mental health disorder, 40.4% were considered mild, 37.3% were considered moderate, and 22.3% of the cases were considered severe (Kessler et al., 2005). These are concerning statistics, especially because approximately 45% of the individuals diagnosed carried two or more mental health diagnoses (Kessler et al., 2005). Considering that 27% of years lived with disability (YLDs) are caused by mental and behavioral disorders, the ramifications of experiencing a mental health disorder can be grave (Murray et al., 2013). These disorders can significantly impair daily functioning, disrupt social relationships, and interrupt employment (Murray et al., 2013).

In addition to the prevalence of mental health disorders, adults in the U.S. contend with increased stress at alarming rates. According to the Stress in America survey, 22% of individuals report experiencing extreme stress (American Psychological Association, 2012). Of the individuals polled, 39% reported that their stress had increased in the past year, and 44% reported that their stress had increased in the past 5 years (American Psychological Association, 2012). This prevalence of stress is significant, as stress is linked to physical and mental health disorders (e.g., American Psychological Association, 2012). For example, people suffering from depression report significantly higher stress
levels than the general population (American Psychological Association, 2012). Additionally, high levels of stress can exacerbate mental health disorders such as depression (American Psychological Association, 2012). As such, it appears that a significant portion of Americans is experiencing specific and general psychological distress at very high rates.

**Mental Health Disparities**

Although mental health difficulties are widespread, these impediments are not experienced uniformly across racial and ethnic groups within the U.S. Although general health disparities between non-Latino/a White individuals and racial and ethnic minority populations are well-documented (e.g., National Center for Health Statistics, 2015), the scholarship on the prevalence of mental health disorders in racial and ethnic majority and minority populations is mixed. For example, in one study, Black individuals had significantly higher rates of PTSD than non-Latino/a White, Latino/a, and Asian individuals (Roberts, Gilman, Breslau, Breslau, & Koenen, 2011). However, other studies have found that racial and ethnic minority groups have a lower prevalence of mental health disorders such as depression (Prat & Brodey, 2014).

Although the literature on disparities in mental health disorders in racial and ethnic majority and minority individuals is complex, this topic becomes clearer when taking into account psychological distress and well-being. For example, Black individuals report more psychological distress and lower well-being than non-Latino/a White individuals (Jang, Chiriboga, Kim, & Phillips, 2008; Williams, Yu, & Jackson, 1997). In understanding this discrepancy, it is imperative to take into account factors underlying this difference. For example, stress factors often underlie psychological distress and
diminished well-being (American Psychological Association 2012). Some significant sources of stress include financial strain, work issues, job stability, and personal safety (American Psychological Association, 2012). Racial and ethnic minority populations generally experience more difficulties in the aforementioned categories relative to non-Latino/a White individuals (e.g., Bureau of Labor Statistics, 2017; Cohen, & Janicki-Deverts, 2012; DeNavas-Walt, Proctor, & Smith, 2015). For example, the federal poverty rate for non-Latino/a White individuals is 10%, whereas it is 26% for Black individuals, 24% for Hispanic individuals, and 12% for Asian individuals (DeNavas-Walt et al., 2015). Unemployment rates in the U.S. reflect a similar trend. In the first quarter of 2017, the unemployment rate for non-Latino/a Whites was 4%, whereas the rates for Black or African Americans and Hispanic individuals were 8% and 6%, respectively (Bureau of Labor Statistics, 2017). Environmental stressors also play an important role in the lives of racial and ethnic minorities. These populations are often segregated in low-income areas and exposed to neighborhood violence, which can induce stress and psychological distress (Ludwig et al., 2012). As such, it seems that although racial and ethnic minority groups do not experience higher rates of mental health disorders overall, these populations experience more general psychological distress and stress factors (e.g., American Psychological Association, 2012; Bureau of Labor Statistics, 2017; Jang et. al, 2008; Williams, Yu, Jackson, 1997).

In understanding factors underlying ethnic and racial minority psychological distress, it is also imperative to consider the role of discrimination. Discrimination is generally a common occurrence for racial and ethnic minorities; experiences of discrimination are linked to a range of deleterious outcomes (e.g., depression, anxiety;
Brown-Iannuzzi, Adair, Payne, Richman, & Fredrickson, 2014; Lee & Ahn, 2012). Among Latinos/as in the U.S., experiencing discrimination is linked to higher levels of depressive symptoms, anxiety, psychological distress, and unhealthy behaviors (Lee & Ahn, 2012). Similarly, among Asian individuals in the U.S., those who report more experiences of discrimination compared to those who report fewer experiences of discrimination, face higher rates of depression, anxiety, and psychological distress (Lee & Ahn, 2012). Depression has also been linked to discrimination and racism among African American individuals (Clark et al., 1999; Sellers, Copeland-Linder, Martin, & Lewis, 2006). Some scholars maintain that these occurrences lead to chronically high stress levels that underlie health disparities between racial and ethnic majority and minority populations, such as increased blood pressure (Brondolo, Rieppi, Kelly, & Gerin, 2003; Clark et al., 1999).

**Mental Health Treatment**

The general recommended approach for treating mental health distress within conventional medicine within the U.S. is psychotherapy individually or in combination with psychotropic medication (Roth & Fonagy, 2006). For example, in 2007, for individuals seeking outpatient mental health care, 57% received medication alone, 32% received both psychotherapy and medication, and 11% received psychotherapy alone (Olfson & Marcus, 2007). However, conventional mental health treatment is not uniformly utilized across racial and ethnic groups (Gibbons et al., 2011). In one study comparing treatment for major depressive disorders between non-Latino/a White and African American individuals in the U.S., researchers found that African American individuals received significantly fewer psychotherapy sessions than non-Latino/a White
individuals even when controlling for access to health insurance (Gibbons et al., 2011). Overall, 10% of African Americans who meet the criteria for a mental illness have reported utilizing a form of treatment within the past year (Neighbors et al., 2007), compared to the 17% of the general population (Wang et al., 2005). Additionally, racial and ethnic minority populations tend to prematurely terminate mental health treatment as compared to non-Latino/a White individuals (Chow et al., 2003; Fortuna, Alegria, & Goa, 2010; Lester, Artz, Resick, & Young-Xu, 2010). Further, racial and ethnic minority individuals living in poverty tend to visit the emergency room or are hospitalized in inpatient psychiatric facilities more relative to non-Latino/a White individuals, suggesting that these individuals often wait until their distress is pronounced and/or are not utilizing regular mental health treatment (Chow et al., 2003; Snowden, Catalano, & Shumway, 2009; Snowden, Hastings, & Alvidrez, 2009).

In understanding mental health treatment disparities, it is also important to note that ethnic and racial minorities tend to have fewer resources, such as economic mobility and health insurance, to address their mental health difficulties (CDC, 2013). In other words, not only are these populations at increased risk for psychological distress (e.g., stress, poverty, discrimination) but the conventional mental health care systems do not seem to be addressing needs of racial and ethnic minority groups (Chow et al., 2003), leaving a disparity in mental health services provided to these populations. As such, it is imperative to provide greater access to mental health care for these populations.

**Complementary and Alternative Medicine**

The high rates of mental disorders and the limited effectiveness of treatment in the U.S. has encouraged some researchers and practitioners to consider other healing
modalities such as complementary and alternative medicine (CAM). CAM has become increasingly prevalent within lay and healthcare settings in the U.S. within the last 15 years (Clarke & NCHS, 2015; Su & Li, 2011). Between 2002 and 2012, there was a 48% increase in the number of individuals who reported utilizing at least one CAM practice (Clarke & NCHS, 2015). CAM encompasses a wide range of practices including but not limited to yoga, mindfulness, acupuncture, energy medicine, and homeopathy. Considering the diversity in CAM healing practices, scholars and practitioners alike have had difficulty defining the term complementary and alternative medicine. For the purpose of this dissertation, I am utilizing the definition of CAM offered by one researcher at Harvard Medical School who defines CAM as:

practices explicitly used for the purpose of medical intervention, health promotion or disease prevention which are not routinely taught at U.S. Medical Schools nor routinely underwritten by third-party payers within the existing U.S. health care system (Micozzi, 2014).

Although the legitimacy of CAM practices has been questioned historically in the realm of conventional medicine, more recently these practices have garnered attention from researchers and practitioners of conventional medicine. The National Center for Complementary and Integrated Health (NCCIH), formerly known as the National Center for Complementary and Alternative Medicine, is one avenue by which CAM has been brought to the mainstream. According the NCCIH, this organization is “the Federal Government's lead agency for scientific research on the diverse medical and health care systems, practices, and products that are not generally considered part of conventional medicine” and reports a budget of $124.1 million (NCCIH, 2007). As such, CAM has garnered much momentum and support, including funds for research. Similarly, the inception of the Journal of Alternative and Complementary Medicine:
Research on Paradigm, Practice, and Policy in 2007 (Journal of Alternative and Complementary Medicine, 2018) has provided an important means of disseminating knowledge about the effectiveness and implications of CAM practices.

Beyond CAM-specific resources and journals, research on these practices has been published in a variety of journals including *The Counseling Psychologist* and *The Journal of Counseling Psychology*, highlighting the pervasiveness of CAM in scientific and mental health realms. For example, numerous researchers have presented mindfulness as a tool to enhance psychological health (e.g., Tarantino et al., 2015; Wei, Tsai, Lannin, Du, & Tucker, 2014). Researchers have also emphasized the importance of integrating alternative therapies such as indigenous therapies to holistically serve their clients experiencing depression (Wendt & Gone, 2016). Similarly, this extensive CAM research has supported the comprehensive health benefits of these practices, such the ability to treat depression with little to no deleterious side effects (Grossman, Niemann, Schmidt, & Walach, 2004; Meibert et al., 2011; Pavão, Vianna, Pillat, Machado, & Bauer, 2010; Riley & Park, 2014). As such, CAM appears to be a promising avenue for mental health treatment.

**CAM Beliefs Among Mental Health Providers**

Mental health providers play a crucial role in treating psychological distress within the U.S. Generally, it seems that mental health providers in the U.S. maintain positive beliefs about CAM (Barnett & Shale, 2012). In one study focused on mental health providers, researchers found that most participants had anecdotal evidence for the effectiveness of CAM practices (Barnett & Shale, 2012). Further, these researchers found that 10% reported expert or good knowledge in bodywork, and 59.8% reported expert or
good knowledge nutritional supplements (Barnett & Shale, 2012). In another study of mental health providers, espousing positive beliefs toward CAM, possessing skill and/or training in CAM, and being female, were predictive of integrating CAM in treatment (Stapleton et al., 2015). Possessing knowledge regarding the scientific validity of CAM practices and having higher levels of formal education were also predictive factors of referrals to CAM made by mental health providers (Stapleton et al., 2015).

Although mental health providers seem to possess some knowledge of CAM, generally espouse positive attitudes towards these practices, and casually recommend these modalities during treatment, the practice of making formal referrals to CAM is relatively low (Barnett & Shale, 2012). One identified barrier to CAM referrals is fear of breaching ethical mandates (Barnett & Shale, 2012). Researchers found that many psychologists worried that making referrals to CAM would not be ethical and/or legal (Barnett & Shale, 2012). However, this belief appears to be a misconception, as each state licensing body provides unique legislation regarding CAM, often allowing referrals to such practices (Barnett & Shale, 2012).

Factors Associated with CAM Use

In addition to exploring CAM beliefs and referral practices amongst mental health providers, researchers have also sought to understand CAM uptake behaviors by studying factors associated with CAM use. In one systematic review of 94 CAM studies, researchers presented multiple factors associated with CAM uptake (Bishop, Yardley, & Lewith, 2007). The results indicated that a person’s belief system is crucial in making CAM decisions. More specifically, researchers found that individuals who espouse holistic beliefs (e.g., those who endorse the mind-body connection), are more likely than
those who do not endorse holistic beliefs to utilize CAM (Bishop et al., 2007; Testerman, Morton, Mason, & Ronan, 2004). Spiritual and religious beliefs are also important factors in predicting CAM use. In one study, individuals who identified as spiritual were also more likely to utilize CAM than those who identified as religious (Bishop et al., 2007). Overall, researchers found that “cultural creatives,” a group that is said to “represent unconventionality and is characterized by commitment to causes such as feminism, environmentalism, spirituality, personal growth and a love of the foreign and exotic” were more likely to utilize CAM than those who maintained more conventional beliefs (Bishop et al., 2007, p. 860).

Social and psychological factors are also important in understanding CAM use. In one study, researchers found that an individual’s social network is an important factor in choosing CAM (Goldman & Cornwell, 2015). More specifically, they found that individuals who serve as a “bridge” in their social network are more likely than those who are more socially insular to utilize CAM (Goldman & Cornwell, 2015). In other words, individuals with more diverse social networks are more likely to try these practices. Psychological factors such as coping skills are important predictors of CAM use, as individuals who utilize active coping, rather than unhealthy (e.g., substance use, avoidance) coping, are more likely to utilize CAM (Bishop et al., 2007). Individuals who are not satisfied with conventional treatment and who believe that they are an active agent in their healthcare are also more likely to utilize CAM than individuals who solely rely on the expertise of medical professionals (Bishop et al., 2007).
**Discrepancy in CAM Utilization**

In addition to exploring factors associated with CAM use, researchers have also identified demographic factors associated with CAM utilization. This research highlights significant differences in CAM uptake across race and ethnicity. Specifically, despite the increasing prevalence of CAM utilization, research suggests that racial and ethnic minority groups in the U.S. are significantly less likely than non-Latino/a White individuals to utilize CAM practices (Olano et al., 2015). In a study of 69,149 participants, researchers found that of those who endorsed utilizing CAM, 70% identified as non-Latino/a White (Olano et al., 2015). Research indicates that CAM usage is also highest among highly educated individuals, women, and those with higher incomes (Olano et al., 2015). This discrepancy is significant, as research has demonstrated that the benefits of CAM practices are not unique to non-Latino/a White individuals (e.g., Abercrombie, Zamora, & Koren, 2007; Dutton, Bermudez, Matas, Majid, & Myers, 2013; Fishbein et al., 2016). In fact, some scholars have argued that practices such as mindfulness can be especially helpful for minority populations in reducing anxiety and enhancing self-compassion (Abercrombie et al., 2007). However, there is limited research explaining the discrepancy in CAM utilization despite evidence suggesting that some of these practices seem to be beneficial across racial and ethnic groups.

**Yoga Prevalence**

The heterogeneity of CAM modalities limits the extent to which implications can be drawn from studies. More specifically, because CAM modalities vary greatly, it is difficult to extrapolate research from some modalities (e.g., yoga) to others (e.g., acupuncture). Therefore, in examining CAM as a tool to assist in ameliorating mental
health disparities, it is imperative to focus on fewer and specific CAM practices. Yoga is a practice that can be especially relevant in utilizing CAM to bridge health disparities, as it has been found to help ameliorate various types of mental health difficulties (e.g., Cramer et al., 2013; Macy et. al., 2015). In a study of 69,149 individuals, 7% individuals reported practicing yoga within the past 12 months—the second highest CAM practice reported (Olano et al., 2015). The highest reported CAM practice was meditation, which only surpassed yoga in popularity by six individuals (Olano et al., 2015).

Yoga is an ancient multifaceted philosophy consisting of eight limbs: yamas (i.e., moral codes), niyamas (i.e., personal behaviors), asana (i.e., body postures), pranayama (i.e., yogic breathing), pratyahara (i.e., withdrawal from senses), dharana (i.e., concentration), dyana (i.e., meditation), and samadhi (i.e., merging with the divine; Iyengar, 2007). Contemporarily in the U.S. mainstream, yoga typically refers to asana (i.e., body positions), pranayama (i.e., yogic breathing), and dyana (i.e., meditation), and the empirical research is focused on these aspects of yoga. Although most yoga practices share the same underlying philosophy, there is a wide range of approaches to yoga. For example, some forms of yoga focus on synchronizing each breath to an individual body movement, whereas other approaches highlight holding body positions for several minutes while easing deeper into the position (De Michelis, 2004). Despite these differences, all yoga practices generally highlight the intrinsic connection between the mind and body, the importance of breath, and living mindfully (De Michelis, 2004).

**Yoga Effectiveness**

Researchers have examined yoga as a healing modality for a variety of physical and mental health disorders. Considering the prevalence of mood and anxiety disorders in
the U.S., in this review I will focus on depression and anxiety. Due to the high rates of experiences of trauma among racial and ethnic minority groups (Roberts, Gillman, Breslau, & Breslau, 2011), I will also focus on trauma. Finally, I will examine the scholarship on stress and quality of life considering that racial and ethnic minorities report higher levels of stress, and generally a lower quality of life, than non-Latino/a White individuals (American Psychological Association, 2012; Williams, Yu, Jackson, 1997).

**Depression.** Researchers have examined the effectiveness of yoga in improving symptoms of depression. In one systematic review of yoga research consisting of nine studies totaling 452 participants diagnosed with a depressive disorder according the DSM-IV or the ICD-10, researchers found support for yoga as a complement to mental health treatment (Cramer et al., 2013). The researchers specifically found moderate evidence for short-term positive effects of yoga compared to treatment-as-usual for depression (Cramer et al., 2013). They also found some evidence favoring yoga as compared to relaxation and aerobic exercise in improving depression. At the long term research follow-up period, the research indicated that there was a higher remission rate in the yoga conditions relative to the treatment-as-usual conditions (Cramer et al., 2013). In other words, participants in the yoga conditions experienced less symptoms of depression in the long term relative to individuals in the treatment-as-usual conditions.

**Anxiety.** Extensive reviews of yoga research have also focused on anxiety. In the aforementioned systematic review, researchers presented evidence suggesting that yoga is more effective in addressing anxiety compared to a relaxation condition (Cramer et al., 2013). In another systematic review of the yoga literature, researchers found that yoga
has been helpful for a variety of anxiety disorders including generalized anxiety and obsessive-compulsive disorder (Macy et al., 2015). In particular, researchers highlighted several factors that are related to the effectiveness of yoga for anxiety: at least 2-3 months of practice, yoga practices that include meditation, and yoga practiced in a group format with a trained instructor (Macy et al., 2015).

Trauma. Yoga has also been found to be effective in treating trauma, and specifically in reducing the symptomatology associated with posttraumatic stress disorder (PTSD; Macy et al., 2015). In fact, researchers have found yoga to be effective in ameliorating trauma symptoms experienced as a result of a variety of tragedies. For example, yoga has been found to be helpful in treating trauma among survivors of natural disasters, witnesses of combat and war, survivors of interpersonal violence, incarcerated youth, and refugees and survivors of torture (Macy et al., 2015). It is also important to note that yoga has been found to be an effective treatment for trauma both as a primary and secondary treatment (Macy et al., 2015). However, researchers have noted that in utilizing yoga to treat individuals who have experienced trauma, it is especially imperative to modify yoga practice. More specifically, trauma-informed yoga is typically different from yoga practiced at studios, as this approach takes into account the symptoms and cognitive processes associated with trauma to avoid exacerbating psychological distress (Spinazzola, Rhodes, Emerson, Earle, & Monroe, 2011). For example, the lights in trauma-informed yoga classes remain bright as compared to typical yoga classes during which the lights are typically dimmed. Participants in trauma-informed yoga classes are often not encouraged to close their eyes to enhance their sense
of safety as compared to typical yoga classes during which participants are typically encouraged to close their eyes to focus on their inner experience.

**Stress and quality of life.** In addition to ameliorating specific psychological distress such as depression and anxiety, yoga has also been found to be helpful in decreasing stress (e.g., Riley & Park, 2015) and enhancing quality of life (Taspinar, Bas Aslan, Agbuga, & Taspinar, 2014). In one study conducted on the general population, researchers found that practicing yoga was associated with increased self-esteem, favorable body image, less symptoms of depression, less fatigue, and an improved quality of life (Taspinar et al., 2014). Moreover, researchers found that yoga practice was associated with less fatigue and increases in self-esteem and quality of life than those in the weight-training condition (Taspinar et al., 2014). As such, it seems that yoga assists in ameliorating specific mental distress while also comprehensively improving quality of life.

**Biological considerations.** Beyond studying the effects of yoga practice on mental health, researchers have also sought to understand the biological mechanisms associated with practicing yoga. In one study, researchers found that salivary cortisol decreased after participating in a yoga class, which then predicted decreased perceived stress (Riley & Park, 2015). Similarly, yoga has been found to decrease sympathetic responses, thereby resulting in more relaxed physiological states (Riley & Park, 2015). Researchers have also explored yoga from a neurocognitive perspective. For example, yoga has been studied as a tool to endure negative stimuli. In one study focused on a yoga master who reported to feel no pain during meditation, researchers found an increase in neuronal activity in his thalamus, insula, and cingulate cortex during practice (Kakigi et
The authors explained that these regions are associated with pain and that the pattern of yogi’s neuronal response in the aforementioned regions suggests that there is an inhibitory action of yogic meditation on spinal nociceptive neurons (Kakigi et al., 2004). In other words, the yoga practice seems to have inhibited sensations of pain.

Additionally, researchers have found neuronal evidence for the impact of yoga on mood. For example, yoga seems to inhibit the influence of negative stimuli despite increased amygdala activity. Froeliger and Garland (2012) found that despite a similar level of amygdala activity between yoga practitioners and non-practitioners, yoga practitioners’ mood remained unaffected when presented with negative stimuli. In this study, researchers suggested that the yoga practitioners were more adept at distancing themselves from their experience thereby resulting in lower levels of distress. As such, it appears that yoga practice is associated with positive effects beyond improved subjective reports.

**Yoga in psychotherapy.** In addition to research assessing the effectiveness of yoga in treating mental health distress, researchers have also examined the effects of integrating yoga into clinical care. In one study, researchers examined the effects of integrating Vinyasa yoga as an adjunctive treatment for depressed patients who were not responding adequately to antidepressant medication (Uebelacker et al., 2010). These researchers found statistically significant improvements in participants’ depression and their ability to practice non-judgment of their experience (Uebelacker et al., 2010).
Qualitative interviews conducted on these participants also highlighted that the participants generally enjoyed the yoga intervention and most had hoped for more weeks of yoga (Uebelacker et al., 2010).

In addition to integrating yoga into mental health research, mental health professionals have found that integrating yogic breathing into clinical sessions for individuals with anxiety can be especially helpful in calming the nervous system (Somerstein, 2010). Based on personal observations, Somerstein (2010) described the various ways that assisting her clients to practice yogic breathing and develop more body awareness has assisted these individuals in coping with their mental health difficulties and in feeling more empowered in their healing. As such, it seems that both in research and in clinical practice, yoga has shown to be a valuable tool to address psychological distress.

**Design limitations.** Although research suggests that yoga can be helpful for a variety of mental health difficulties and in increasing quality of life, it is important to note several limitations in the aforementioned research. First, although the extant systematic reviews attempted to solely utilize RCT study designs, some of the studies included in the reviews were not randomized or did not include a control group, limiting the ability to infer causation from the findings. Second, there is significant heterogeneity of yoga practices within these RCTs, which reflects the overall diversity in yoga practice. For example, some studies solely utilized the asana (e.g., body positions) aspect of yoga whereas others also included pranayama (e.g., yogic breathing) and dyana (e.g., meditation). This difference is important, considering that some studies solely found yoga to be effective if the meditation component was included in the intervention (Macy et al.,
Another limitation in yoga research is that some studies allowed participants to partake in other treatments simultaneously, whereas others focused on yoga as the sole treatment. The lack of uniformity in yoga interventions has led some researchers to suggest that yoga should be utilized as a complement rather than a primary treatment (Cramer et al., 2013).

**Discrepancy in Yoga Practice**

Yoga practice appears to be a widespread practice within the U.S., as 7% of participants in one study reported practicing yoga within the previous year (Olano et al., 2015). However, despite the pervasiveness of yoga and its effectiveness in ameliorating psychological and physical distress, researchers have found that non-Latino/a White individuals report practicing yoga more often than racial and ethnic minority individuals (Olano et al., 2015; Park, Braun, & Siegel, 2015). Yoga is also practiced more often among women and among individuals who earn higher than average incomes (Park et al., 2015). For instance, in 2008, 48% of yoga practitioners earned an annual income of at least $65,000 compared to the national median of $51,726 (Noss, 2010; Park et al., 2015). Relatedly, 50% of individuals who practice yoga have a college degree, compared to 23% of the general population (Park et al., 2015). Individuals who practice yoga are also more likely to identify as spiritual rather than religious (Park et al., 2015). Moreover, identifying as Christian is inversely related to yoga practice (Park et al., 2015). Therefore, in addition to indicating that racial and ethnic minorities practice yoga less often that non-Latino/a White individuals, research has also highlighted factors associated with yoga
practice (e.g., high income, high levels of formal education, spirituality) that are often less common among racial and ethnic minorities than among non-Latino/a White individuals (e.g., Park et al., 2015; Stapleton et al., 2015).

Although scholars have identified factors predictive of yoga practice, the extant literature does not explore factors underlying the discrepancy in practice across racial and ethnic groups. One such factor may be health literacy. Health literacy is defined as the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions (Ratzan & Parker, 2000). One important component of health literacy that may be especially pertinent to the study of yoga practice across racial and ethnic groups is cultural and conceptual knowledge. Researchers have defined cultural and conceptual knowledge as “the filter through which individuals obtain, process, and understand health information and options for diagnosis and treatment” (Buki et al., 2016, p. 641). Specifically, attitudes, beliefs, knowledge, emotions, and behaviors are some of the important constructs that underlie the larger construct of cultural and conceptual knowledge, which is an essential aspect of health literacy (Buki et al., 2016). As such, exploring attitudes, beliefs, knowledge, emotions, and behaviors as they relate to yoga uptake may also begin to elucidate the reasons that yoga uptake rates are different across racial and ethnic populations. Beginning to develop an understanding of the level of yoga health literacy across these populations could be helpful, as higher health literacy is related to better health behaviors (e.g., Berkman, Sheridan, Donahue, Halpern & Crotty, 2011).

Researchers have found that generally, yoga practitioners endorse beliefs that yoga can improve physical, psychological, and spiritual health (Brems et al., 2015).
However, researchers have not explored whether there is a difference in these beliefs between non-Latino/a White individuals and racial and ethnic minorities. In other words, scholars have identified factors associated with yoga practice, but they have not thoroughly compared key predictive factors across different racial and ethnic populations. This gap in the literature is significant considering the discrepancy in yoga practice between racial and ethnic minorities and non-Latino/a White individuals. Moreover, understanding this gap is crucial, as yoga has been found to be helpful for racial and ethnic minority populations, and yet these groups partake in yoga at significantly lower rates than non-Latino/a White individuals (e.g., Field, Diego, Delgado, & Medina, 2013; Moadel et al., 2007).

**Benefits of Yoga Within Minority Populations**

Yoga has been found to be helpful in ameliorating psychological difficulties specifically within minority racial and ethnic populations (e.g. Field et al., 2013; Moadel et al., 2007). In one study focused on pregnant women in which 97% of the sample identified as Black or Hispanic, researchers found that a combined yoga-tai chi intervention was associated with a decrease in symptoms of depression, anxiety, and sleep difficulties relative to the control group (Field et al., 2013). In another study conducted on breast cancer patients in which 73% of the sample identified as African American or Hispanic, yoga practice was associated with increased social well-being, emotional well-being, and a decreased distressed mood relative to the control condition (Moadel et al., 2007). Such findings are concordant with research conducted on the general population suggesting that yoga is beneficial in improving various aspects of
psychological health. In other words, not only is yoga helpful for the general population, but this practice also appears to be beneficial specifically for racial and ethnic minorities.

In addition to quantitatively examining the effects of yoga, scholars have also qualitatively explored yoga practice within ethnic and racial minorities. In one study, which consisted of mostly Black and Hispanic individuals who earn a low income (i.e., mean household income $30,000), researchers conducted qualitative interviews assessing participants’ experiences of a yoga intervention (Keosaian et al., 2016). Participants reported utilizing the skills learned in yoga to relax, manage anger, and cope with stress (Keosaian et al., 2016). One participant expressed, “A lot of times when I feel stressed or anxious I’ll do the breathing. I’ll do the breathing when I can’t get to sleep at night as opposed to taking a sleep pill” (Keosaian et al., 2016, p. 36). Researchers also found an increase in self-efficacy and empowerment within the participants (Keosaian et al., 2016). One participant expressed, “I felt good because I was doing something, not sitting around waiting for a diagnosis, not taking another pill…I was involved in my treatment.” (Keosaian et al., 2016, p. 36). This enhanced empowerment is significant considering the historical mistrust of medical establishments within racial and ethnic minority populations (e.g., Crobie-Smith, Thomas, & George, 2002).

**Yoga as a potential tool to cope with discrimination.** Considering the prevalence of discrimination experienced by racial and ethnic minority groups and the deleterious effects of these experiences, researchers have sought to identify methods of coping with these experiences (e.g., Brown-Iannuzzi, Adair, Payne, Richman, & Fredrickson, 2014; Lee & Ahn, 2012). Mindfulness is one factor that has been explored. Although mindfulness is not synonymous with yoga, mindfulness and meditation are
important elements of yoga practice. As such, by practicing yoga, individuals are also practicing mindfulness (Iyengar, 2007). Moreover, some prevalent mindfulness approaches such as mindfulness-based stress reduction (MBSR) include yoga positions as part of the practice (MBSR, 2017).

In one study, researchers found that trait mindfulness moderated the relationship between discrimination and symptoms of depression (Brown-Iannuzzi et al., 2014). In examining trait mindfulness, researchers assessed participants’ self-endorsed capacity to be mindful. Specifically, these researchers found that higher levels of mindfulness were associated with corresponding decreases in symptoms of depression across racial and ethnic groups (Brown-Iannuzzi et al., 2014). In another study specifically focused on race-related stress, researchers found that higher levels of mindfulness were related to active coping among Black individuals (Womack & Sloan, 2017). These researchers posited that a higher level of mindfulness allows individuals to separate themselves from the stress experience thereby allowing them to respond to the event in a more helpful way (Womack & Sloan, 2017). In sum, it seems that yoga and specific aspects of yoga, such as mindfulness, are not only helpful to the general population, they are specifically beneficial to racial and ethnic minorities. These practices seem to empower individuals and help them create the psychological space they need to distance themselves from detrimental societal impositions such as discrimination. However, this finding does not
suggest that individuals placate themselves in the face of injustice. Instead, mindfulness can assist individuals in coping with discrimination in the moment while larger societal changes remain necessary.

Factors Barring Yoga Practice

Although researchers have not specifically focused on factors influencing yoga practice for racially and ethnically diverse individuals, they have sought to generally understand factors preventing individuals from practicing yoga. Two of the most common factors reported by individuals are limited time and money (Brems et al., 2015). Other barring factors include difficulty connecting to a yoga teacher, work demands, family obligations, access to a teacher, and lack of yoga-related self-efficacy (Brems et al., 2015). Similarly, individuals expressed concerns about not having enough muscular flexibility and non-practicing men have also expressed perceptions that yoga is for women considering their flexibility relative to men (Brems et al., 2015). Knowledge was another important aspect, as individuals have expressed a lack of knowledge regarding yoga as a barring factor (Brems et al., 2015).

Of the identified barriers to practice, it is plausible that financial limitations could be especially relevant for racial and ethnic minorities. However, in one study, of the individuals who reported practicing yoga, 76% reported that they had not incurred any yoga-related costs within the past 12 months (Saper, Eisenberg, Davis, Culpepper, & Phillips, 2004). Clearly, yoga practice is possible without incurring costs. However, it is
unclear whether this information is widely accessible, and it is not clear whether
individuals who practice without incurring costs have paid for formal instruction at some
point in learning yoga.

Beyond the aforementioned factors, it also plausible that cultural incongruence
can help to explain the difference in yoga practice between non-Latino/a White
individuals and racial and ethnic minorities. In one qualitative study, researchers sought
to examine sociocultural perspectives on physical activity among African American and
Native American women. Generally, these researchers found that although the
participants rarely attributed their limited leisure physical activity to their racial and
ethnic identity, underlying barring factors were often related to these aspects of their
identity (Henderson & Ainsworth, 2000). For example, some participants recognized that
they would likely be the only Black individual participating in activities such as yoga and
swimming (Henderson & Ainsworth, 2000). Some participants discussed avoiding some
activities such as walking, which seemed to be linked to the days in which they were not
allowed to ride the bus and thus forced to walk (Henderson & Ainsworth, 2000). Thus,
although participants did not explicitly implicate their racial and ethnic identity as
influencing their physical activity, their identity was nonetheless often included in their
responses.

In qualitatively exploring African American and Native American women’s
perceptions of physical activity, researchers have also found that marginality is an
important hindering factor (Henderson & Ainsworth, 2000). For example, participants
explained that they had limited prior access to recreational facilities and activities, which
then influenced their interests and hobbies later in life (Henderson & Ainsworth, 2000).
Further, participants often mentioned that they typically had not seen leisure physical activity modeled within their families, which then influenced their perceptions and behaviors related to exercise (Henderson & Ainsworth, 2000). As such, it is plausible that the discrepancy in yoga practice between racial and ethnic minorities and non-minorities is related to historical and cultural factors related to physical activity. However, this topic and other potential barriers to yoga practice among racial and ethnic minority populations have not been empirically explored. Therefore, it is important to systematically compare barriers to yoga across racial and ethnic populations to help elucidate the discrepancy in yoga practice. In turn, this information could inform interventions aimed at bridging the gap in yoga practice between racial and ethnic minorities and non-minorities.

**Exploring Beliefs, Knowledge, and Emotions**

In addition to the limited research exploring barriers to yoga practice across racial and ethnic populations, there is also a dearth of research exploring whether the discrepancy in yoga practice is related to a difference in underlying psychological constructs. For example, to my knowledge, there is no research exploring differences in holistic beliefs based on race and ethnicity. Similarly, there are no studies exploring yoga beliefs across racial and ethnic populations. Exploring potential differences in beliefs can help to elucidate whether there are unhelpful beliefs about yoga that might be underlying the discrepancy in practice rates. This information might help to inform interventions aimed at bridging the gap in yoga practice between these populations.

Systematic studies exploring differences in knowledge of yoga practice between racial and ethnic minority and non-minority groups are also missing from the literature. This gap in the literature is important considering that researchers have identified limited
yoga knowledge as a barrier to yoga practice (Brems et al., 2015), and there is a relationship between health knowledge and health behavior (Williams & Jeanetta, 2016). Although knowledge is not the sole determinant of health-related behaviors, research suggests that individuals with higher levels of health knowledge are more likely to engage in behaviors that promote health than individual with lower knowledge levels (e.g., Williams & Jeanetta, 2016). As such, exploring knowledge of yoga across racial and ethnic groups can help to elucidate whether interventions aimed at increasing knowledge might help to bridge the gap in yoga practice between racial and ethnic minorities and non-Latino/a White individuals. Another important construct that has not been explored empirically is emotions towards yoga. Examining emotions towards yoga can helpful, as research suggests that emotions influence decision-making (Angie et al., 2011). Generally, researchers have found that discrete emotions have a moderate to large effect on decision-making outcomes (Angie et al., 2011). As such, in studying the gap in yoga practice between racial and ethnic minority and non-minority groups, exploring emotions towards yoga might help to explain this gap. In turn, this information could contribute to the development of interventions aimed at ensuring equitable yoga practice across racial and ethnic populations.

**The Role of Counseling Psychology**

Considering the values of prevention and multidisciplinary interventions within counseling psychology (Packard, 2009), conducting research on the gap in yoga practice between non-Latino/a White individuals and racial and ethnic minorities aligns well with this field. The holistic approach and integration of community-level interventions within counseling psychology (Packard, 2009) suggests that counseling psychologists are well
equipped to work collaboratively to translate this research into action. Moreover, the focus on social justice within counseling psychology (Packard, 2009) invites counseling psychologists to address the gap in yoga practice with the aim of enhancing health among racial and ethnic minority populations.

**Summary of Literature Review**

Health disparities between non-Latino/a White individuals and racial and ethnic minorities have been well documented in the U.S. (e.g., American Psychological Association, 2012; National Center for Health Statistics, 2015). However, mental health disparities between these groups are complex. Although racial and ethnic minority groups do not universally experience a higher proportion of mental health disorders relative to non-Latino/a White individuals, psychological distress and stress are higher among these individuals (e.g., American Psychological Association, 2012; Jang et. al, 2008; Williams et al., 1997). Moreover, these populations are predisposed to experience discrimination, which is linked to poor psychological and physical health (e.g., Lee & Ahn, 2012). Although psychotherapy and psychotropic medication are typically recommended for psychological distress, this approach within our current conventional mental healthcare system is not serving the needs of racial and ethnic minority groups. These populations are less likely to have health insurance relative to non-Latino/a White individuals (CDC, 2013) and these groups are more likely to prematurely terminate mental health counseling (Chow et al., 2003). As such, a critical disparity in mental healthcare for racial and ethnic minorities remains.

One promising avenue that might assist in ameliorating mental health disparities in the U.S. is complementary and alternative medicine. Complementary and alternative
medicine, and in particular, mindfulness-based modalities, have been shown to be helpful for a variety of mental health difficulties, as well as in improving the quality of life across racial and ethnic groups (e.g., Abercrombie et al. 2007; Fishbein et al., 2016). In particular, yoga has been shown to decrease symptoms of depression, anxiety, and trauma (Cramer et al., 2013; Macy et al., 2015). Yoga has also been shown to assist in enhancing quality of life (Taspinar et al., 2014). Not only are the benefits of yoga documented through self-reports and clinician assessments, but also neurocognitive researchers have highlighted the positive effects of yoga on a neuronal level (e.g., Kakigi et al., 2004; Riley & Park, 2015). These benefits of yoga have been found across racial and ethnic groups (e.g., Field et al., 2013; Riley & Park, 2015). In particular, research specifically focused on racial and ethnic minorities has demonstrated that yoga can help to ameliorate psychological distress (e.g., Field et al., 2013) and that components of yoga (i.e., mindfulness/meditation) can be helpful in coping with discrimination (e.g., Brown-Iannuzzi et al., 2014).

Despite research suggesting that yoga can enhance mental health across racial and ethnic groups, there is a significant difference in yoga practice between non-Latino/a White individuals and racial and ethnic minorities. Specifically, yoga practice is most common among non-Latino/a White women who are highly educated, earn an income above the national average, and who identify as spiritual as opposed to religious. Although researchers have identified multiple factors associated with yoga, factors explaining the difference in practice between racial and ethnic groups are missing from the literature. For example, in exploring factors barring yoga practice, researchers have identified factors such as limited time and money (Brems et al., 2015), however, they
have not compared these factors across racial and ethnic groups. Similarly, it is plausible that differences exist between racial and ethnic minorities and non-Latino/a White individuals in the degree to which they endorse holistic beliefs, as these beliefs are predictive of CAM practices such as yoga (Testerman et al., 2004). However, to my knowledge, there is no research examining holistic beliefs across racial and ethnic groups. Similarly, research exploring potential differences in beliefs about yoga across racial and ethnic groups is missing from the literature. As such, it is unclear whether the discrepancy in yoga practice is related to differences in unhelpful beliefs about yoga across racial and ethnic groups. Therefore, research exploring yoga beliefs across racial and ethnic groups could be an important contribution to understanding factors underlying the gap in yoga practice between racial and ethnic minorities and non-minorities.

Another important limitation in the literature is the lack of systematic studies exploring knowledge of yoga across racial and ethnic groups. Identifying potential differences in knowledge would be significant, as researchers have identified limited knowledge as a barrier to yoga (Brems et al., 2015). Moreover, more knowledge is associated with better health related behaviors (Williams & Jeanetta, 2016). Therefore, identifying a gap in yoga knowledge could assist researchers and practitioners in the development of interventions such as yoga psychoeducation to help bridge the gap in yoga practice between non-Latino/a White individuals and racial and ethnic minorities. Similarly, considering that emotions are related to decision-making (Angie et al., 2011),
exploring emotions towards yoga across racial and ethnic populations could help to enhance our understanding of the discrepancy in yoga practice between racial and ethnic minorities and non-Latino/a White individuals.

Considering the comprehensive mental health benefits of yoga across racial and ethnic populations, the fact that this modality does not require health insurance, and that it can be integrated in daily life without professional intervention, yoga can be one avenue to reduce mental health disparities experienced by racial and ethnic minorities (e.g., Aboagye et al., 2015). However, to utilize yoga to reduce these mental health disparities, it is imperative to systematically study factors influencing the discrepancy in yoga practice between racial and ethnic minorities and non-Latino/a White individuals. Developing an understanding of factors underlying the discrepancy in yoga practice can help to inform the level in which to intervene to ensure equitable access to yoga across racial and ethnic populations. Moreover, better understanding the differences can help to inform interventions aimed at fostering yoga as viable complement to mental health care for racial and ethnic minorities. In sum, the strong potential of yoga to enhance mental health among racial and ethnic minorities calls for an exploratory study examining multiple factors such as barriers, beliefs, knowledge, experiences, and emotions related to yoga across racial and ethnic populations. This information could ultimately inform multifaceted interventions aimed at ensuring more equitable access to yoga across racial and ethnic populations.
CHAPTER 3
METHODOLOGY

There is limited research exploring the factors that contribute to the discrepancy in yoga practice between non-Latino/a White and racial and ethnic minority populations. It is plausible that this discrepancy can be explained by differences in underlying psychological constructs such as barriers, beliefs, knowledge, and emotions related to yoga. However, researchers have not systematically compared these factors across racial and ethnic minorities and non-Latino/a White individuals. Considering this paucity of research and the lack of a theoretical framework to understand the discrepancy in yoga practice, a comprehensive study is essential to expanding our knowledge. This knowledge could serve a significant role in informing interventions, which could ultimately ameliorate the disparity in yoga uptake.

There were several research questions in this study. For the quantitative portion, the research questions that guided the analyses are: (a) Do beliefs about yoga, holistic beliefs, knowledge of yoga, and barriers to yoga practice vary by race and ethnicity? and (b) Assuming there is a relationship between race and ethnicity and beliefs about yoga, do knowledge of yoga and holistic beliefs moderate this relationship? For the qualitative portion, the research question that guided the analysis was: How do participants from various racial and ethnic groups describe their emotions, experiences, and barriers related to yoga? To address these research questions, I conducted a mixed method study utilizing
the convergent parallel approach. Creswell (2011) described the convergent parallel approach such that

> [it] occurs when the researcher uses concurrent timing to implement the quantitative and qualitative strands during the same phase of the research process, prioritizes the methods equally and keeps the strand independent during data analysis and then mixes the results during the overall interpretation (pp. 70-71).

This approach is recommended for the study of underexplored areas of research, such that the priority is to gather various forms of data to begin elucidating a phenomenon (Creswell, 2011). Within this approach, researchers gather data from multiple sources with the intention of formulating a well-rounded understanding of a phenomenon. Some scholars describe the convergent parallel approach as similar to triangulation in qualitative research (Creswell, 2011).

Aligned with convergent parallel mixed-method approach (Creswell & Clark, 2011), I initially analyzed the quantitative and qualitative data separately to address the respective research questions. I will present the quantitative methods and results in Chapter 4 followed by the qualitative methods and results in Chapter 5. In addition to reporting the results for each analysis separately, I also drew meta-inferences from the data, which are synthesized in the discussion (Creswell & Clark, 2011). Meta-inferences are inferences drawn from the results of the two portions of a mixed-method study (Creswell & Clark, 2011). I triangulated the quantitative and qualitative components to expand, confirm, and refute interpretations drawn from the individual analyses. I refuted some of my original interpretations and refined these ideas into more comprehensive interpretations. For example, the qualitative interviews helped to explain that differences in beliefs about yoga across racial and ethnic groups that emerged in the quantitative portion seemed to be related to barriers to and access to yoga. Similarly, the quantitative
findings helped to quantify and specify the barriers to yoga that some participants expressed in the qualitative interviews. As such, I utilized the qualitative data to expand on the quantitative findings and vice versa. I utilized both of these data to address the overarching objective to understand the documented discrepancy in yoga practice between non-Latino/a White individuals and minority populations. As such, both aspects of this study informed the larger interpretation of the findings.

Before describing the methods and results for the quantitative and qualitative components of the study in the following chapters, I will first present my researcher positionality. The positionality statement is an important component of research, as it is imperative for researchers to reflect on their own values, experiences, and beliefs in order to understand the potential association between their worldview and the results of the study (Morrow, 2005). I present this statement first for the reader to consider the association between this study and my personal experiences related to yoga before reading the results. Considering that the quantitative and qualitative components of the study were conducted separately and have different samples, I present the results and methods of these components of the study separately. I then synthesize the findings across both modalities in the discussion section.

**Researcher Positionality**

My interest in this topic stems from both my personal experience of practicing yoga and my professional work as a clinician. Although I have practiced yoga for nearly 13 years, I have often felt a cultural incongruence in many yoga classes I have attended. I have noticed seemingly little racial, ethnic, and socioeconomic diversity in many of these
classes. As a first-generation child of immigrant parents from Brazil and Portugal, having been raised in a working-class family, and currently earning a low income, I cannot help noticing that some of my most formative identities do not seem to be represented in most yoga classes.

In my experience of yoga in the West, most studios are costly, typically costing over $100 per month. Individuals often bring specialized yoga mats and props to class, and sometimes wear expensive yoga attire (e.g., $100-pair yoga pants). In fact, I was recently asked what brand my yoga pants were by a fellow practitioner, which signaled to me the consumerism that nonetheless has infiltrated a practice historically focused on minimizing materialism (De Michelis, 2004). The high costs associated with yoga have invited me to be creative in seeking free and low-cost yoga options.

Beyond a subjective sense of cultural incongruity at times, socioeconomic considerations have also been explicitly highlighted for me in yoga. For instance, I have experienced microaggressions such as being gently accused of not paying for a yoga class although there was no reason to suspect that I had not paid other than the fact that I was not a member of the studio, but instead I had utilized a discounted one-class student pass. In this experience, I felt discriminated against, especially since there was no clear reason to suspect that I had not paid. I wondered whether the employee was displaying classism, as I was not a member of the boutique studio and unlike most students in the class, did not present to class with high-end yoga props. Such experiences have highlighted that the yoga community in the U.S. seems to be a microcosm of larger cultural dynamics within
the country. In other words, it seems that even within the yoga community, individuals may be judged or discriminated against based on their perceived socioeconomic status.

Despite some uncomfortable experiences in yoga settings, I have nonetheless benefitted physically, psychologically, and spiritually from this practice. As a graduate student in psychology, I have also followed the literature on yoga and mindfulness-based practices. I am aware of the empirical evidence suggesting the effectiveness of yoga for a variety of physical and psychological ailments, as well as its benefits for overall well-being. I am also aware of its effectiveness across racial and ethnic groups within the U.S.

Considering minority populations typically have higher attrition rates in counseling than non-Latino/a White individuals (Chow et al., 2003), it is imperative to increase the options for mental health services for minority groups. My belief is that yoga can be one such avenue. Moreover, my experiences practicing yoga in India highlighted a very different approach to yoga, one in which props and yoga-specific attire were inessential. I was exposed to a less materialistic approach to yoga and one that was not solely for the privileged. However, based on my personal experiences of yoga practice in the U.S. and research demonstrating a discrepancy in practice between majority and minority populations, at the outset of this study I suspected that minority individuals might sense a cultural incongruence in yoga. For example, I suspected racial and ethnic minorities might not see other minorities in yoga classes. Considering that racial and ethnic minorities were historically banned from recreational centers (Wolcott, 2012), I wondered whether individuals from these marginalized groups might hold negative beliefs associated with exercise. As such, I wondered whether individuals from minority groups might have limited knowledge about the practice apart from mainstream exposure
in the media, which often highlights thin, non-Latino/a White, young women in impressive and advanced yoga positions. In addition to cultural perspectives, I suspected that access to yoga might also be a barrier for minority individuals, especially for those with limited means to pay for classes.

In conducting a mixed methods study, I was able to triangulate data to more comprehensively understand the perceptions of non-Latino/a White individuals and racial and ethnic minorities regarding yoga practice. Considering that I value both quantitative and qualitative approaches, this study is also a representation of my values as a researcher. However, I also recognize that these research methodologies are at odds with one another at times, as they sometimes represent the dialectic between pragmatism and constructivism. From the pragmatist perspective, any research method is appropriate if it helps to elucidate the phenomenon of interest (Cornish & Gillepsie, 2009). In this approach, phenomena can be operationalized and quantified if it serves the research question. As such, I would assumedly be able to objectively describe and quantify the differences in perceptions and experiences of yoga across populations. On the other hand, consistent with a constructivist approach, qualitative research may be utilized to highlight the phenomenological and subjective perceptions of participants about yoga practice. Additionally, this approach emphasizes the researcher’s worldview as an inherent influence and limitation in the research (Gordon, 2009). Although I recognize these fundamental differences, I do not see the pragmatist and constructivist approaches in opposition.

In this study, I aimed to aggregate information to better understand inequity and to eventually inform the best ways to intervene. As such, at the core of my research
imperative is a commitment to understanding and addressing an inequity in uptake of yoga practice. Considering the complexity of inequity generally and the limited information on my particular research topic, I selected a multidimensional approach (i.e., mixed methods) because it would allow for a more comprehensive glimpse of factors underlying any differences in yoga practice uptake. Being aware of the classical assumptions regarding epistemology in both quantitative and qualitative research, I am drawn to the unique and important types of data that can be derived from both of these approaches. In other words, I focused on utilizing the unique tools within each methodology with the aim of a gestalt outcome.
CHAPTER 4
QUANTITATIVE METHODS AND RESULTS

In this chapter, I present the quantitative methods including the participants, survey measures, and procedures. Next, I present the quantitative results, which are organized by research question.

Participants

I recruited a convenience sample of 500 individuals for the quantitative portion through Amazon Mechanical Turk (MTurk). MTurk is an Internet crowdsourcing service that provides a platform for human intelligence tasks (HIT) such as completing surveys and transcribing audio files (Amazon.com Inc., 2018). MTurk has reported a pool of 500,000 workers from 190 countries (Amazon.com Inc., 2018). Research suggests that MTurk is a valid source of data producing results similar to other data collection methods (e.g., undergraduate students) on dimensions such as rejection rates, attentiveness, and honesty (Paolacci & Chandler, 2014; Sprouse, 2011). Mturk also provides more diverse samples than typical college and Internet samples (Buhrmester et al., 2011). Considering that recruiting a racially and ethnically diverse sample was crucial for my analyses, MTurk was an appropriate avenue for recruitment.

MTurk allows for surveys to be linked to survey development tools such as Qualtrics. As such, my questionnaire was built on and hosted by Qualtrics and linked to MTurk. Linking the questionnaires to Mturk provided the opportunity for the study to be listed on the HIT opportunity list available to all MTurk workers. Linking the study to MTurk also provided a convenient and efficient manner to compensate the participants for completing the survey. To take part in the survey, participants needed to endorse that
they are (a) currently residing the U.S., (b) 18 years of age or older, and (c) have the ability to read English, as the measures are written English. Initially, 500 individuals completed the survey. However, 26 surveys were rejected due to the participants missing an attention check, which suggests they were not reading the questions carefully. The attention checks ensured that the participants were reading the questions carefully by asking the participant to select a specific answer. If the participant did not select the indicated answer, this individual failed the attention check and was bypassed to the end of the survey. Data for surveys that were rejected were not retained for analyses. As such, there was a 5% rejection rate and 474 surveys were accepted.

**Measures**

**Demographic questionnaire.** I administered a demographic questionnaire to each participant (see Appendix A). This questionnaire assessed: age, gender, ethnicity, race, annual household income level, perceived socioeconomic status, ability status, formal education level, religion, country of origin, and marital status. This form also assessed whether participants practice yoga, the length of time practicing, and frequency of practice. Participants identified as non-Latino/a White ($n = 329, 69\%$), Latino/a or Hispanic ($n = 64, 14\%$), Asian ($n = 43, 9\%$), African American or Black ($n = 22, 5\%$), Bi/multiracial ($n = 15, 3\%$), and Native Hawaiian or Pacific Islander ($n = 1, <.1\%$). Four groups (i.e., non-Latino/a White, Latino/a or Hispanic, African American or Black, and Asian) were retained due to having a sufficient number of participants for analyses. The other groups were omitted from the analyses due to an insufficient number of individuals in the groups for statistical analyses. As such, the final sample size was 458 participants.
The mean age of participants was 37 years old ($SD = 12$) with a range of 19 to 77 years old. The participants identified as male ($n = 233, 51\%$), female ($n = 224, 49\%$), and other ($n = < .1\%$). The median annual household income was $45,000 ($M = $57,666; $SD = $68,315$) with a range of $0$ to $780,000$. Regarding perceived socioeconomic status, 28% of participants identified as low, 60% identified as middle, 11% identified as upper middle, and 1% identified as having high socioeconomic status (see Table 1 for descriptive statistics).

Regarding yoga practice, 72% of participants reported that they are not currently practicing yoga; the remainder reported that they are currently practicing. Among those practicing yoga, 55% identified as non-Latino/a White individuals, 28% identified as Latino/a, 12% identified as Asian, and 5% identified as African American or Black. However, there was a statistically significant difference in the proportion of individuals who practice yoga between the non-Latino/a White group and the Latino/a group, $X^2(3, N = 458) = 31.33, p < .001$. Specifically, 55% of Latino/a individuals reported that they currently practice yoga as compared to 21% of non-Latino/a White individuals.

**Power analysis.** An a priori power analysis was conducted to determine the required sample size for quantitative analysis using GPower (Faul, Erdfelder, Buchner, & Lang, 2009). Based on the limited number of participants in the Bi/multiracial, American Indian or Alaskan Native, and Native Hawaiian or Pacific Islander groups, these participants were not included in the quantitative analyses. For the chi square analysis, the power analysis indicated that 122 participants would be needed to detect a medium effect size ($f^2 = .3$) with a power of .80, and an alpha level of $\alpha = .05$ for four groups. For the MANOVA analysis, the power analysis indicated that 88 participants would be
needed to detect a medium effect size ($f^2 = .06$) with a power of .80, and an alpha level of $\alpha = .05$ for four groups and three response variables. For the regression analysis, the power analysis indicated that 88 participants would be needed to detect a medium effect size ($f^2 = .15$) with a power of .80, and an alpha level of $\alpha = .05$ for four tested predictors and seven total predictors. As such, these analyses suggest that the sample size ($N = 458$), was sufficient for the statistical analyses.

**CAM Belief Questionnaire.** To assess general attitudes toward CAM and holistic beliefs, I utilized the CAM Health Belief Questionnaire (CHBQ; Lie & Boker, 2004). The CHBQ is a 10-item questionnaire assessing general CAM beliefs and holistic views of health (Lie & Boker, 2004). In the CHBQ, respondents are asked to rate statements on a 7-point Likert-type scale ranging from 1 (*absolutely disagree*) to 7 (*absolutely agree*). Higher scores indicate a higher endorsement of holistic beliefs. This measure was validated on a sample of racially and ethnically diverse medical students, demonstrating good internal validity (Cronbach’s $\alpha = .75$). Convergent validity was demonstrated with the Integrative Medicine Attitude Questionnaire, a measure designed to measure attitudes toward integrative medicine among healthcare providers, as the two measures were positively correlated (Li & Boker, 2004). Cronbach’s alpha for this study was $\alpha = .83$.

The mean CHBQ score was 45.80 ($SD = 10.77$) with a range of 13 to 70. Preliminary analyses suggested that responses for this variable were normally distributed, as skewness was -.328 and kurtosis was .347 (Tabachnick & Fidell, 2007). In the current study,
individuals who currently practice yoga had significantly higher CHBQ scores ($M = 48.65, SD = 8.68$) than individuals who are not currently practicing yoga ($M = 44.71, SD = 11.29, t(456) = 3.56, p < .001$).

**Beliefs About Yoga Scale.** To assess participants’ beliefs about yoga, I utilized the Beliefs About Yoga Scale (BAYS; Sohl, Schnur, Daly, & Montgomery, 2011). The BAYS is an 11-item questionnaire consisting of three subscales: expected health benefits, expected discomfort, and expected social norms. In the BAYS, respondents are asked to respond to statements on a 7-point Likert-type scale ranging from 1 (*extremely unlikely*) to 7 (*extremely likely*). Higher scores indicate more favorable attitudes toward yoga. This measure was validated on a general sample of racially and ethnically diverse participants. The BAYS has demonstrated good internal consistency (Cronbach’s $\alpha = .76$) and a strong factor structure (Sohl, Schnur, Daly, & Montgomery, 2011). Criterion validity was demonstrated by correlating BAYS scores with amount of yoga experience and general positive attitudes toward yoga. In a previous study, BAYS scores were higher for individuals with more yoga experience and among those who indicated generally more positive attitudes toward yoga (Sohl et al., 2011). To assess criterion validity, researchers also included an open-ended question (If I practiced yoga, I….) to ensure that the BAYS captured the most prevalent beliefs about yoga (Sohl et al., 2011). Cronbach’s alpha for this study was $\alpha = .79$. The mean BAYS score was 52.84 ($SD = 9.64$) with a range of 24 to 77. Preliminary analyses suggested that responses for this variable were normally distributed as skewness was .227 and kurtosis was -.418 (Tabachnick & Fidell, 2007).
Individuals who currently practice yoga had significantly higher BAYS scores \( (M = 54.94, SD = 10.98) \) than individuals who are not currently practicing yoga \( (M = 52.70, SD = 8.96, t (193.98) = 2.67, p = .08) \).

**Barriers to Yoga.** To identify potential barriers to yoga, I utilized the factors barring subscale of the Acceptability of Yoga Survey (AYS; Brems et al., 2015). The AYS is a comprehensive measure intended to assess various aspects of yoga practice; however, the Factors Barring component, which consists of one item (“To what degree do the following factors play a role in keeping you from practicing yoga?”), is most relevant to this study. Based on literature examining barriers to yoga practice, Brems et al. (2015) devised a list of potential barriers. Participants are presented with 22 potential barriers and are asked to indicate the extent to which the factor is a barrier to yoga practice on a 4-point Likert-type scale ranging from 1 (no role) to 4 (large role). This measure was piloted on a sample of racially and ethnically diverse students in the health professions with a range of yoga experience (i.e., non-yogis, contemplators, yogis).

**Knowledge of Yoga.** To assess participants’ knowledge of yoga, I created a 10-item Knowledge of Yoga assessment (see Appendix B). The questions consist of both accurate and inaccurate statements regarding yoga. For example, one item reads, “The main goal of yoga is to increase physical flexibility.” Participants indicated whether they perceived the statements to be “true,” “false,” or “don’t know.” To score the assessment, I totaled the number of accurate responses. Cronbach’s alpha for this sample was \( \alpha = .63 \). The mean knowledge score was 5.38 \( (SD = 2.14) \) with a mode of 6 and a range of 0 to 10. Preliminary analyses suggested that responses for this variable were normally distributed as skewness was -.226 and kurtosis was -.512 (Tabachnick & Fidell, 2007). Although
there was no difference in knowledge scores between individuals who are currently practicing yoga and those who are not practicing, knowledge scores were positively correlated with more yoga experience $r = .33, p < .01$. However, it is important to note that this measure was created for this study and has not undergone extensive validity analyses.

Although knowledge, beliefs, and barriers are separate psychological constructs and were assessed using separate measures, there is some overlap across areas in the Yoga Knowledge, BAYS, and Factors Barring measures.

**Procedure**

After receiving IRB approval, I launched the survey on MTurk. Participants received a link to the survey hosted by Qualtrics. Because the intended goal of recruiting 500 participants was met in less than one day, the survey was not advertised on other Internet sources as originally planned (see Appendix C). The link directed participants first to the consent form. Only after providing consent (see Appendix D), participants were directed to the link for the survey measures. The survey began with a demographic questionnaire. The remaining survey measures were presented in a random order generated by Qualtrics. Attention checks were built in throughout the survey measures to ensure that participants read the questions carefully. After successfully completing the survey measures, participants were assigned a completion code. Participants then entered this code into MTurk to be compensated for participating. Participants who missed an attention check were skipped to the end of the survey measures and were not given a completion code or compensated. All participants who successfully completed the measures were compensated $1.00 via MTurk and given the opportunity to choose to
receive an Amazon gift card or to have the funds deposited into their bank account. No participant identifying information was shared with the researcher.

Quantitative Results

Quantitative analyses were conducted utilizing IBM SPSS Statistics Version 22 to answer the following research questions: (a) Do beliefs about yoga, holistic beliefs, knowledge of yoga, and barriers to yoga practice vary by race and ethnicity? and (b) Assuming there is a relationship between race and ethnicity and beliefs about yoga, does knowledge of yoga and holistic beliefs moderate this relationship?

Research Question a: Do beliefs about yoga, holistic beliefs, knowledge of yoga, and barriers to yoga vary by race and ethnicity?

Beliefs about yoga, holistic beliefs, and knowledge of yoga. To assess whether there is an association between race and ethnicity and various aspects of yoga, I conducted a MANOVA. Race and ethnicity served as the independent variable with four levels: non-Latino/a White, Latino/a, African American or Black, and Asian. Other racial and ethnic groups were not included due to a limited numbers of participants in the categories. The dependent variables included CHBQ, BAYS, and Yoga Knowledge.

Several indicators of multivariate normality were checked including examining the Mahalanobis Distance, matrix plot, QQ plots, histograms, Box’s test of equality of covariance matrices, and Shapiro-Wilk’s test of normality. Most of the tests of normality suggested that the data are normally distributed. However, Shapiro-Wilk’s test of normality was statistically significant suggesting that all of the dependent variables may
not be normally distributed. To account for this indication of non-normal data, I interpreted Pillai’s Trace for the MANOVA test, which corrects for non-normal data (Tabachnick & Fidell, 2007).

A statistically significant MANOVA effect was observed, Pillai’s Trace = .04, $F(6,9) = 1.96, p = .04$ with $f^2 = .01$. This finding suggests that there was at least one statistically significant mean difference in CHBQ, BAYS, and/or Knowledge of Yoga among the racial and ethnic groups. To identify the specific statistically significant differences, univariate analyses were examined. Univariate analyses indicated that there was an effect of racial and ethnic group on both BAYS, $F(3, 453) = 2.74, p = .04, \eta^2_p = .02$, and Knowledge of Yoga, $F(3, 453) = 3.16, p = .02, \eta^2_p = .02$. Due to the unequal group sizes (e.g., non-Latino/a White $n = 329$, African American or Black $n = 21$), Gabriel’s post hoc analysis was conducted, as this test accounts for unequal group sizes (Kim, 2015). Gabriel’s post hoc test indicated that there was a statistically significant mean difference in BAYS between non-Latino/a White individuals and Latino/a individuals ($M_{\text{diff}} = 3.28, SE = 1.31, p < .05$). Specifically, non-Latino/a White individuals scored higher in the BAYS ($M = 53.29, SE = .53$) than Latino/a individuals ($M = 50.02, SE = 1.20$). This finding indicates that non-Latino/a White individuals endorsed more favorable beliefs about yoga than Latino/a individuals. However, these findings are not consistent across the three subthemes in the BAYS (i.e., expected benefits, expected discomfort, social norms). Although there was no significant mean difference in expected benefits between non-Latino/a White individuals and Latino/a participants, there was a significant mean difference between these two groups in expected discomfort, $t(391) = -2.39, p < .05$ with Latino/a participants reporting more
expected discomfort ($M = 12.48, SD = 4.57$) than non-Latino/a White participants ($M = 11, SD = 4.54$). Similarly, there was a significant mean difference between these two groups in social norms, $t (391) = -4.51, p < .001$. Latino/a participants reported that they perceive more social norms in yoga classes ($M = 13.13, SD = 4.13$) than non-Latino/a White participants ($M = 10.67, SD = 3.90$). Additional post hoc results are presented in Table 2.

There was also a statistically significant mean difference in knowledge of yoga between non-Latino/a White individuals and Latino/a individuals ($M_{diff} = .77, SE = .29, p < .05$). Specifically, non-Latino/a White individuals scored higher in knowledge of yoga ($M = 5.55, SE = .12$) than Latino/a individuals ($M = 4.78, SE = .27$). No other group comparisons were statistically significant. It is important to note that although a priori power analyses suggested that the sample size was sufficient to detect medium effect sizes in the MANOVA, this model may have only been able to detect medium to large effect sizes in the African American or Black category due to the number of participants in this group.

**Barriers to yoga.** To examine whether barriers to yoga practice differed by race and ethnicity, I conducted chi square analyses utilizing the Factors Barring measure. I specifically collapsed the barring factor measure into a binary yes-no measure, as the original form of this measure is a 4-point Likert-type scale. Specifically, small, moderate, and large role were collapsed into yes and no role remained as no. I then conducted a chi square analysis for each barring factor in order to determine differences between racial and ethnic groups in endorsing potential barring factors as prohibitive.
I entered race and ethnicity as columns and the presence of a barring factor (yes, no) as the rows. Of the 22 chi square analyses (see Table 3), 12 were statistically significant indicating at least one significant group difference. Group differences were compared utilizing the Bonferroni correction, which adjusts the alpha value due to multiple comparisons. The significant comparisons are detailed below.

**Interest.** There was a statistically significant difference between the racial and ethnic groups in endorsing interest as a barrier to yoga practice, $X^2 (3, N = 458) = 15.59, p < .05$. Specifically, Asian individuals reported that interest was a barrier to practicing yoga (90%) more than non-Latino/a White individuals (67%; $p < .008$).

**Cost.** There was a statistically significant difference between the racial and ethnic groups in endorsing cost as a barrier to yoga practice, $X^2 (3, N = 458) = 18.76, p < .001$. Specifically, Latino/a individuals reported that cost was a barrier to practicing yoga (91%) more than non-Latino/a White individuals (64%; $p < .008$) and more than Black or African American individuals (64%; $p < .008$).

**Lack of transportation.** There was a statistically significant difference between the racial and ethnic groups in endorsing lack of transportation as a barrier to yoga practice, $X^2 (3, N = 458) = 43.73, p < .001$. Specifically, Latino/a individuals reported that lack of transportation was a barrier to practicing yoga (69%) more than non-Latino/a White individuals (27%; $p < .008$) and Black or African American individuals (36%; $p < .008$). Asian individuals also reported that lack of transportation as a barrier to yoga (49%) more than non-Latino/a White individuals ($p < .008$).

**I don’t know how to get started.** There was a statistically significant difference between the racial and ethnic groups in endorsing “I don’t know how to get started” as a
barrier to yoga practice, $X^2 (3, N = 458) = 13.51, p < .05$. Specifically, Latino/a individuals reported that “I don’t know how to get started” as a barrier to practicing yoga (77%) more than non-Latino/a White individuals (55%; $p < .008$) and Black or African American individuals (46%; $p < .008$).

**I had a bad experience with yoga.** There was a statistically significant difference between the racial and ethnic groups in endorsing “I had a bad experience with yoga” as a barrier to yoga practice, $X^2 (3, N = 458) = 49.70, p < .001$. Specifically, Latino/a individuals reported that “I had a bad experience with yoga” as a barrier to practicing yoga (52%) more often than non-Latino/a White individuals (14%; $p < .008$). Asian individuals also endorsed “I had a bad experience with yoga” as a barrier to yoga (30%) more than non-Latino/a White individuals (14%; $p < .008$).

**I am not flexible enough.** There was a statistically significant difference between the racial and ethnic groups in endorsing “I am not flexible enough” as a barrier to yoga practice, $X^2 (3, N = 458) = 11.62, p < .05$. Specifically, Latino/a individuals reported that “I am not flexible enough” as a barrier to practicing yoga (80%) more than non-Latino/a White individuals (59%; $p < .008$).

**I don’t like the way I’d have to dress.** There was a statistically significant difference between the racial and ethnic groups in endorsing “I don’t like the way I’d have to dress” as a barrier to yoga practice, $X^2 (3, N = 458) = 15.33, p < .05$. Specifically, Latino/a individuals reported that “I don’t like the way I’d have to dress” as a barrier to practicing yoga (53%) more than non-Latino/a White individuals (33%) and Black or African Americans individuals (14%; $p < .008$).
I don’t like the language used in yoga. There was a statistically significant difference between the racial and ethnic groups in endorsing “I don’t like the language used in yoga” as a barrier to yoga practice, $X^2 (3, N = 458) = 21.78, p < .001$. Specifically, Latino/a individuals reported that “I don’t like the language used in yoga” as a barrier to practicing yoga (48%) more than non-Latino/a White individuals (21%; $p < .008$).

Yoga seems to be only for women. There was a statistically significant difference between the racial and ethnic groups in endorsing “Yoga seems to be only for women” as a barrier to yoga practice, $X^2 (3, N = 458) = 21.32, p < .001$. Specifically, Latino/a individuals reported that “Yoga seems to be only for women” as a barrier to practicing yoga (50%) more than non-Latino/a White individuals (28%; $p < .008$) and Black or African American individuals (18%; $p < .008$).

Yoga seems to be only for skinny people. There was a statistically significant difference between the racial and ethnic groups in endorsing “Yoga seems to be only for skinny people” as a barrier to yoga practice, $X^2 (3, N = 458) = 8.52, p < .05$. Specifically, Latino/a individuals reported that “Yoga seems to be only for skinny people” as a barrier to practicing yoga (56%) more than non-Latino/a White individuals (37%; $p < .008$).

Yoga seems to be only for young people. There was a statistically significant difference between the racial and ethnic groups in endorsing “Yoga seems to be only for young people” as a barrier to yoga practice, $X^2 (3, N = 458) = 9.79, p < .05$. Specifically, Latino/a individuals reported that “Yoga seems to be only for young people” as a barrier to practicing yoga (39%) more than non-Latino/a White individuals (23%; $p < .008$).
**Yoga seems to be only for White people.** There was a statistically significant difference between the racial and ethnic groups in endorsing “Yoga seems to be only for White people” as a barrier to yoga practice, $X^2 (3, N = 458) = 72.98, p < .001$.
Specifically, Latino/a individuals (52%), Asians (35%), and Black or African American individuals (27%), reported “Yoga seems to be only for White people” as a barrier to practicing yoga more than non-Latino/a White individuals (9%; $p < .008$).

**Yoga seems like a religion or cult to me.** There was a statistically significant difference between the racial and ethnic groups in endorsing “Yoga seems like a religion or cult to me” as a barrier to yoga practice, $X^2 (3, N = 458) = 17.99, p < .001$.
Specifically, Latino/a individuals reported that “Yoga seems to like a religion or cult to me” as a barrier to practicing yoga (47%) more than non-Latino/a White individuals (22%; $p < .008$).

**Yoga is threatening to my religious beliefs.** There was a statistically significant difference between the racial and ethnic groups in endorsing “Yoga is threatening to my religious beliefs” as a barrier to yoga practice, $X^2 (3, N = 458) = 41.84, p < .001$.
Specifically, Latino/a (42%) and Asian individuals reported that “Yoga is threatening to my religious beliefs” as a barrier to practicing yoga more than non-Latino/a White individuals (11%; $p < .008$).

**Yoga seems too sexual for me.** There was a statistically significant difference between the racial and ethnic groups in endorsing “Yoga seems too sexual for me” as a barrier to yoga practice, $X^2 (3, N = 458) = 45.51, p < .001$.
Specifically, Latino/a (44%) and Asian individuals (26%) reported that “Yoga seems too sexual for me” as a barrier to practicing yoga than non-Latino/a White individuals (10%; $p < .008$).
**Research Question b:** Assuming there is a relationship between race and ethnicity and beliefs about yoga, do knowledge of yoga and holistic beliefs moderate the relationship between race and ethnicity and beliefs about yoga?

**Holistic beliefs as moderator.** To determine whether holistic beliefs moderate the relationship between race and ethnicity and beliefs about yoga, I conducted a hierarchical regression analysis (Cohen, Cohen, West, & Aiken, 2013). Because the MANOVA analysis was only statistically significant for the comparison between the non-Latino/a White and Latino/a groups, these groups were the only ones entered into the regression model. To run the analyses, I created a dummy variable for the Latino/a and non-Latino/a White comparison. I centered CHBQ scores to prevent multicollinearity (Frazier, Tix, & Barron, 2004). I created an interaction term between CHBQ (centered) and race and ethnicity in order to run the hierarchical analysis. In step one, I entered CHBQ (centered). In step two, I entered the dummy variable (non-Latino/a White vs. Latino/a). In step three, I entered the interaction term between CHBQ and race and ethnicity.

The interaction was not significant indicating that holistic beliefs did not moderate the relationship between racial and ethnic identity and beliefs about yoga, $\Delta R^2 = .00, \Delta F (1, 389) = .94, p = .33$. However, holistic beliefs was a significant predictor of beliefs about yoga overall, $R^2 = .19, F (1,391) = 91.16, p < .001$. Holistic beliefs significantly predicted beliefs about yoga for the non-Latino/a White and Latino/a groups when combined ($\beta = .39, p < .001$). It is also important to note that both the CHBQ and dummy variable were significant predictors of beliefs about yoga (see Table.
4). This finding suggests that even when controlling for holistic beliefs, the difference in beliefs about yoga between non-Latino/a White individuals and Latinos/as remained.

**Knowledge of yoga as moderator.** In order to examine whether knowledge of yoga moderates the relationship between race and ethnicity and beliefs about yoga, I ran a hierarchical regression analysis (Cohen, Cohen, West, & Aiken, 2013). Considering that the MANOVA analysis was only statistically significant for the comparison between the non-Latino/a White and Latino/a groups, these groups were the only ones entered into the regression model. To run the analyses, I created a dummy variable for the Latino/a and non-Latino/a White comparison. I centered the knowledge of yoga scores to prevent multicollinearity (Frazier et al., 2004). I then created an interaction term between knowledge of yoga (centered) and the dummy variable in order to run the hierarchical regression analysis. In step one, I entered knowledge of yoga (centered). In step two, the dummy variable. In step three, I entered the interaction term between knowledge of yoga and race and ethnicity. The interaction was not significant indicating that knowledge of yoga did not moderate the relationship between racial and ethnic identity and beliefs about yoga, $\Delta R^2 = .00, \Delta F (1, 389) = .14, p = .707$. However, knowledge of yoga was a significant predictor of beliefs about yoga overall, $R^2 =.16, F (1, 391) = 72.88, p < .001$. Knowledge of yoga significantly predicted beliefs about yoga for the non-Latino/a White and Latino/a groups when combined ($\beta = 1.80, p < .001$; see Table 5). It is important to note that although the MANOVA analysis indicated that there was a difference in beliefs about yoga between non-Latino/a White individuals and Latino/a individuals, when knowledge was controlled for in the regression analysis, this difference did not remain.
CHAPTER 5

QUALITATIVE METHODS AND RESULTS

In this chapter, I present the qualitative methods including the sample method, participants, measures, procedure, and analytic strategy. Next, I present the qualitative results, which are organized by the themes that emerged in the analysis.

**Sampling Method**

Researchers have utilized various methods to determine the sample size for the qualitative portions of mixed methods studies (Creswell, Fetters, & Ivankova, 2004). Some researchers have aimed to recruit every individual who participated in the quantitative portion, and others planned to recruit enough individuals to represent various experiences of the specific phenomenon of interest (e.g., Kerrigan, 2014). Aligned with Kerrigan’s (2014) approach, I aimed to represent diverse and comprehensive perspectives of the four main groups within the study. I utilized purposive sampling, which is a nonrandom sampling method often utilized in qualitative research to recruit individuals who have experienced the central phenomenon or key concepts being explored (Creswell & Clark, 2011). I specifically utilized maximal variation sampling, a type of purposive sampling, in order for participants to represent a diverse set of experiences. Numerous variables are often utilized to maximize differences in participants in this approach to sampling (Creswell & Clark, 2011). I particularly took into account participants’ racial and ethnic identity as well as yoga experience resulting in four groups: racial or ethnic minority currently practicing yoga, racial or ethnic minority not currently practicing yoga, non-Latino/a White currently practicing yoga, and non-Latino/a White not
currently practicing yoga (see Figure 1). Of the 16 total individuals recruited for the qualitative component, I recruited four individuals for each category.

**Figure 1.** Qualitative Interview Participant Groups

![Yoga Experience Diagram]

**Participants**

Fifty-two individuals completed a screening; 16 individuals were selected to take part in the interviews. These individuals were selected based on their racial and ethnic identity, yoga experience, gender, and responses to a screening to ensure that maximum variation in experiences represented, as maximal variation sampling was utilized. The remaining 36 potential interviewees were not included for a variety of reasons, such as not returning the researcher’s email or due to the category already having been filled. To have been included in the study, participants need to (a) currently reside in the U.S., (b) be 18 years of age or older, and (c) have the ability to speak and read English, as the measures are written English and the interviews were conducted in English. Nine participants (56%) identified as female; the remainder identified as male. Participants’ ages ranged from 24 to 67 ($SD = 15.76$). One participant earned a high school degree.
(6%), one completed some college (6%), nine earned a college degree (57%), four earned a master’s degree (25%), and one earned a doctorate (6%). Given the wide range of educational levels, annual household income also ranged widely. The median annual household income was $85,000 with a range of $20,000 to $500,000 ($M = $127,222, $SD = $150,563). However, it is important to note that six individuals chose not to disclose their annual household income.

Four participants were included in each of the categories: non-Latino/a White currently practicing yoga (50% female, 50% male; age \(M = 41.5, SD = 17.94\)), non-Latino/a White not currently practicing yoga (50% female, 50% male; age \(M = 50.25, SD = 17.17\)), racial or ethnic minority currently practicing yoga (75% female, 25% male; age \(M = 37.5, SD = 8.70\)), and racial or ethnic minority not currently practicing yoga (50% female, 50% male; age \(M = 37.5, SD = 8.70\)).

**Measures**

**Demographic questionnaire.** I administered the same demographic questionnaire from the quantitative component to each participant who was screened for the qualitative component. This questionnaire assessed the following: age, gender, ethnicity, race, annual household income level, perceived socioeconomic status, ability status, formal education level, religion, country of origin, and marital status. This form also assessed whether participants practice yoga, the length of time practicing, and frequency of practice.

**Quantitative questionnaires.** Each participant was screened for the qualitative component by completing the survey measures from the quantitative component. The questionnaires included the CAM Health Belief Questionnaire, Beliefs About Yoga,
Knowledge of Yoga, Factors Barring surveys. I utilized participants’ responses to the demographic questionnaire and survey measures to identify individuals for each of the four categories and to ensure that I recruited individuals with varied experiences and perspectives on yoga. Responses on the survey measures were also utilized to guide the individual interviews.

**Interview guide.** Qualitative interviews were based on opened-ended questions and predetermined auxiliary prompts (see Appendix J). Interviews began with the question “When I say the word ‘yoga,’ what comes to mind?” I also asked the following questions: “What emotions do you experience when you think of yoga?” “What has been your experience of yoga, if any?” “What are the barriers that prevent you from practicing yoga (or practicing more)?” I allowed the participants’ answers to guide the follow-up prompts. I also utilized the list of auxiliary questions and participants’ responses on the survey measures to guide the interviews.

**Trustworthiness**

Trustworthiness in qualitative research is understood as the extent to which a study is conducted with scientific rigor. Trustworthiness is conceptualized as consisting of four components: credibility, transferability, dependability, and confirmability (Lincoln & Guba, 1985). Credibility, which refers to confidence in the truth of the findings, was addressed through triangulation of the data. I specifically utilized multiple forms of data (i.e., survey, interview, process notes) to converge, expand, and challenge my interpretation of the research findings (Morrow, 2005). By triangulating various vantage points and data sources, I enriched and broadened my understanding of the perspectives and experiences of yoga among participants (Morrow, 2005). I also utilized...
member checking to enhance the credibility of the study. I contacted some participants by email to review some of my coding to ensure that I accurately represented their ideas. Transferability, which refers to the idea that findings have applicability in other contexts, was addressed by providing thick description of participants’ responses. Thick description refers to describing phenomena in sufficient detail to be able to draw conclusions and explore generalizability to other contexts (Lincoln & Guba, 1985).

Dependability, which refers to showing that findings could be repeated, was addressed by including external audits. External audits involve utilizing individuals who are not involved in the study to evaluate whether the findings, interpretations, and conclusions are supported by the data. Two graduate student peers who are proficient in qualitative research independently reviewed select portions of the transcripts along with the identified codes to assess the accuracy of the codes. This process highlighted that further abstraction and refinement of the codes was necessary. This process continued until the final codes emerged. Confirmability refers to the degree of neutrality of the researcher and the extent to which the findings are shaped by the respondents rather than the researcher bias, motivation, or interest (Lincoln & Guba, 1985). I addressed confirmability through triangulation and reflexivity. Reflexivity refers to the act of researchers explicitly stating and reflecting on the extent to which their personal experiences and characteristics influenced all aspects of the investigation, such as their interaction with the participants, their interpretation of the data, and their expectations of the findings. Throughout the analysis, I remained cognizant of my personal experiences with yoga and refrained from self-disclosure to participants to prevent possible bias in their responses. In addition to practicing reflexivity throughout the conceptualization of
the study, I also utilized a journal to reflect throughout the entirety of the research process and consulted with this journal while analyzing findings and making interpretations.

**Procedure**

For the qualitative component, I recruited from local community organizations with which I have preexisting relationships. For example, I recruited from non-profit organizations, yoga studios, and community recreation centers. I collaborated with the organizations to determine the most appropriate time for recruitment to refrain from disturbing normal operations. I spoke to audiences to verbally invite individuals to participate in the study. I utilized an IRB-approved verbal script (see Appendix K) to inform prospective participants about the study. I invited individuals who were interested in participating to collect a recruitment flyer (see Appendix L) after my brief presentation. To be screened, participants initially completed the quantitative measures hosted by Qualtrics at their convenience. At the end of the survey, participants who were interested in participating in an interview were asked to provide contact information. I utilized these completed surveys, which included contact information, to recruit 16 individuals for the qualitative interviews.

The 16 individuals recruited took part in an individual interview lasting approximately 30 to 50 minutes. Interviews took place in a mutually agreed-upon quiet space (e.g., library, conference room). All of the interviewees provided verbal consent
(see Appendix H) and were audio recorded. The audio recordings were transcribed verbatim for data analysis. After completing the interview, each individual received a $15 Amazon gift card and a discount pass donated by a local yoga studio.

**Analytic Strategy**

I utilized a thematic methodology introduced by Couch, Saxton, and Katovich (1986) and elaborated on by Denzin (1989) to analyze the qualitative components of this study. Aligned with standard practice in this approach (e.g., Buki, Kogan, Keen, & Uman, 2005), I reviewed the transcripts of audio recordings to extract themes that would help answer the overarching research question: How do participants from various racial and ethnic groups describe their emotions, experiences, and barriers related to yoga? Specifically, I reviewed the transcripts for themes related to the following specific questions: “What emotions related to yoga do participants express?” “How do participants describe their experience of yoga?” “What barriers to yoga do participants express?”

I assigned initial codes to content relevant to the three aforementioned questions. Next, I reviewed these codes and identified comprehensive themes based on commonalities among the codes. I ensured that each code would be subsumed by the themes. I then collapsed the codes subsumed under each overarching theme into subthemes. Next, I reviewed the transcripts ensuring that the subthemes could accurately and comprehensively represent the participants’ responses. External reviewers also reviewed the transcripts and assigned the themes and subthemes to the transcripts. I reviewed the auditors’ responses to ensure concordance. In instances in which our subthemes did not align, I discussed this with the auditor and modified the subthemes to
ensure representativeness of the data. The iterative process continued for several rounds until the final themes and subthemes emerged. I then reviewed these themes within each of the categories of participants (e.g., racial or ethnic minority currently practicing yoga vs. non-Latino/a White not currently practicing yoga) to explore potential differences between the groups.

**Qualitative Results**

**Research Question a:** How do participants from various racial and ethnic groups describe their emotions, experiences, and barriers related to yoga?

The semi-structured interview approach created an open-ended interview that allowed participants to discuss other aspects of their lives such as their career, hobbies, and communities in addition to yoga. For example, some individuals who do not practice yoga often spoke about other hobbies and outlets that provide them with tranquility. However, the following data analysis is specifically focused on emotions, experiences, and barriers related to yoga. Based on this analysis, two main themes emerged: Facilitating Factors and Barriers to Yoga. Within the Facilitating Factors theme, three subthemes emerged: benefits, exposure to yoga, and resources. Within the Barriers to Yoga theme, five subthemes emerged: limited knowledge, spiritual or religious incongruence, unmet needs, apprehension to yoga culture, and contextual limitations. Descriptions and supporting data for each subtheme are presented next.
Theme One: Facilitating Factors

Participants who currently practice yoga described numerous factors that have facilitated their yoga practice. Factors generally included individual-level and contextual considerations.

**Subtheme one: Benefits.** In describing factors that facilitate their yoga practice, participants who currently practice yoga described numerous benefits they have experienced as result of yoga. Specifically, participants reported physical, emotional, and spiritual benefits, highlighting the multidimensional benefits associated with yoga practice. In describing physical benefits, one participant explained that “It got me to a point where I could actually touch my toes and do all that good stuff and increase my flexibility and stamina, my strength in areas that I needed it, and I've lost [nearly 100] pounds.”

Participants also reported various mental and emotional benefits, such as feelings of agency and empowerment. Accordingly, they explained that they feel in control and intentional as a result of their practice. In describing her experience with yoga, one participant explained:

> I have the ability to alter my nervous system through controlling my breath, and as I’m sitting there in traffic and thinking about something, I am breathing versus sitting there in traffic, inhaling for 6 counts, holding the breath, exhaling for 6 counts, and that’s a totally different experience, and it’s like, for me, it’s the tool that I have to reclaim my power, you know, and knowledge is power, like knowing that I have the power to alter [my nervous system].

Participants also described experiencing uplifting emotions, such as tranquility and peace, as a result of practicing yoga. Thus, they experienced stress relief, a mind—body connection, and felt grounded, through yoga. One participant explained, “[yoga] makes
Yoga also provided participants with a sense of solace during tumultuous times. For one participant who began practicing yoga during a difficult time, he explained that yoga “gave me a little bit of hope when I didn't see any at that point in time.” Through observing his own gradual progress in yoga, including greater physical fitness and improved emotional stability, yoga seemed to highlight that change is possible and, in turn, provided this individual with a sense of hope during a seemingly hopeless time. Similarly, yoga provided a source of spiritual growth for some participants. In describing his spiritual development, one participant explained:

So, I love yoga, but what happens when you continue with yoga is [that] if you keep yoga around, the spiritual aspects of yoga start. And that is even more beneficial than the physical, so it’s much more. I can’t say enough good things…. Yoga opened a door for me and I started to see what is really important [in life].

In addition to personal benefits, participants also reported that yoga provides them with an outlet for positive social interactions. For one individual, a racial minority who described historically being exposed to negative portrayals of racial minority women, being in a yoga class comprised predominantly of racial minority women was a powerful experience. He juxtaposed this exposure to strong racial minority women supporting one another to the ways that racial minority women are often negatively portrayed in the
media and in his community. Moreover, he described yoga as the only outlet that provides this individual with healthy interactions with racial minority women. He explained,

I get to see women [who identify as a racial minority] in a positive light, which I haven't had much experience in my life….it's all been stereotypical, but it's not really a stereotype when it's actually true…but in that setting, those women have goals, those women are motivated. They're tough, fortified, they're hardened. They're like hardened steel. They're all like wonder women, they can't be stopped, and they have motive, they have goals, and there's nothing that's gonna get in their way, and instead of them using that to hinder and hurt people, they use it to lift each other and support each other, and that's the part I like.

Similarly, in describing her close-knit yoga classes, one participant who is also a yoga instructor explained:

I do a lot of group poses, so I get everyone to line up and we all do tree pose together holding each other’s shoulder and if someone falls then we laugh and have a good time, it’s not so serious. And in that way, we embrace, and they know that we have this built in community.

**Subtheme two: Resources.** Participants identified various external and internal resources that facilitate their yoga practice. External resources refers to factors that are not characteristics or innate to the individual such finances and other life circumstances. Some participants reported having convenient access to yoga classes and sufficient money to pay for them. One participant explained, “I'm lucky that I can afford it, so I don't think much about what the class costs.” However, some participants also accessed yoga through donation-based classes, which help them address their financial limitations at the time.

In addition to external resources, participants also mentioned several resources at the individual level that facilitate their yoga practice. Internal resources refer to intrapsychic and personal attributes such as confidence and flexibility. For example,
some participants discussed already having been athletic prior to beginning yoga, which eased them into the practice. One participant explained, “A lot of people kind of have reservations about yoga; I didn’t have so much because I already had the flexibility.” Personality traits such as confidence also seemed to facilitate yoga practice. One participant stated, “my personality makes it easier for me to be in yoga.” Similarly, another stated, “I'm not an insecure person. I'm not a shy person.” These individuals acknowledged that yoga classes might invoke self-consciousness or social comparison. However, they described their personality as less susceptible to these barriers.

**Subtheme three: Exposure to yoga.** Being initially exposed to yoga by others and being exposed to various forms of yoga were facilitative factors as well. For many of the participants, their introduction to yoga was through a friend or relative. In describing his initial introduction to yoga, one participant explained:

> my great aunt, my grandma’s sister was, is really, into yoga. She’s just very old now, so she doesn’t [practice anymore], but even until like her [advanced age] she was doing yoga at home, and so like sometimes we’d go to her room and she was like standing on her head or doing different things.

For this individual, she explained that yoga was “just something that I was always familiar with,” which helped her decide to practice later in life. Some participants also discussed being exposed to yoga through an institution such as school or other residential facilities. One participant who experienced anxiety from a young age was first exposed to yoga in middle school explained,

> [They offered] a yoga class at my middle school…and I and one of my friends as a joke, we were going to this weird yoga thing, probably so weird we were just going to laugh. And at the end of the class I was, I just felt good.

Being exposed to various styles of yoga also facilitated some participants’ yoga practice. Generally, these individuals explained that they were exposed to a wide variety
of yoga classes and approaches to the practice. In other words, they became aware of the variety of styles of yoga early into their practice, which allowed them to find a good fit. In describing her journey to find a yoga style that suited her, one participant explained that she began “taking different classes in different periods, different studios, different styles.” It is through this exposure that this participant found the type of yoga that best suits her and also learned about the benefits and downsides of different styles of yoga.

**Theme Two: Barriers to Yoga**

The second main theme that emerged from the data was the notion of having barriers to yoga, just the opposite of facilitative factors. Most participants, including those who currently practice yoga, identified factors that prevent them from practicing yoga, cause hesitation, or cause apprehension, which negatively influence their ability to practice. Even most participants with an active yoga practice reported they would want to practice more, but encounter barriers that prevent them from doing so. Within this theme, five subthemes were identified: limited knowledge, spiritual or religious incongruence, unmet needs, apprehension to yoga culture, and contextual limitations.

**Subtheme one: Limited knowledge.** Some participants described lacking the perceived requisite knowledge to practice yoga. For example, some participants explained that were not aware of the benefits of yoga or how to begin practicing. In explaining barriers to practicing yoga, one non-practicing individual explicitly stated, “I think lack of knowledge.” Similarly, in describing his perceptions of the reason that yoga is not widely practiced in his community, another participant, “I don’t think they [community members] got the information. I don’t think they got the knowledge.”
None of the individuals currently practicing yoga endorsed knowledge as a barrier. As such, limited yoga knowledge emerged as a barrier only for those who are not currently practicing yoga.

**Subtheme two: Spiritual or religious incongruence.** Spiritual or religious incongruence emerged as a barrier for both those who are currently practicing yoga and those who are not. Specifically, some individuals who practice and do not practice yoga reported that they associate yoga with Eastern religion. Among practicing participants, some described this spiritual or religion incongruence as an initial obstacle they eventually overcame. One participant explained, “I think before, I had associated [yoga] with Hindu[ism] and was a little bit turned off because I didn't want to invoke other spirits that [are] not aligned with my beliefs.” Similarly, another participant who currently practices described her initial perception of yoga practice as being “cult-like” and rigid. She explained that yoga can get “to a point where it is very cult-like and there is no room for flexibility, which is ironic with yoga because you want it to be flexible.” However, this individual was exposed to different types of yoga and eventually found a style of yoga that best suits her. For others, the spiritual or religious elements in yoga continue to cause some hesitation when they think about engaging in yoga practice. One individual who currently practices explained lightheartedly,

> as far as my spiritual, like the light in me sees the light in you, as far as that light, as long as that light doesn't get too bright and start ... we start drinking each other's blood, I'm gonna be okay. I'm just joking, I'm just joking.

For this individual, he explained that he is comfortable with some aspects of yoga that may be considered spiritual (e.g., greetings in Sanskrit, closing chants), but he is not interested in becoming involved in spiritual practices that do not align with his values or
belief system. Overall, some participants were able to reconcile their initial feelings of spiritual or religious incongruence as they engaged in yoga practice, whereas others, including those who currently practice yoga and those who do not, remain weary.

**Subtheme three: Unmet needs.** This subtheme emerged as a barrier to yoga solely for individuals who are not currently practicing yoga. This barrier represents a continuum ranging from individuals who find yoga too challenging, to those who do not find yoga challenging enough. Individuals indicated that yoga is too challenging for a variety of reasons, including physical expectations and type of instruction in yoga classes. Individuals who find yoga too challenging often expressed feeling discouraged and confused as a result of trying yoga. One participant explained “I’m not at that fitness level…I was just confused all the time, so I’m like ‘why am I going to invest in this?’” Similarly, one individual who attempted yoga a few times expressed, “I felt defeated….I just couldn’t do what they were asking me to do.” Another participant who struggled physically during yoga classes explained that “I see no benefits in yoga” and expressed “I don’t care for it, so I just kind of think ‘yuck.’” It is important to note that all of these participants reported having tried yoga several times. Moreover, they generally explained that they had intentionally sought out beginner classes but they nonetheless described having difficulty keeping up with the class for a variety of reasons such as the pace and the physical demands of the class.

For some individuals, yoga aggravated preexisting injuries; therefore, they chose not to continue with the practice. One participant explained, “My biggest problem with yoga is that I’ve had a couple of injuries that just haven’t gelled…So, for some reason my experience with yoga recently has been very painful.” Conversely, one participant who
has chronic injuries both related and unrelated to yoga explained that her injuries are not a barrier, as she has sufficient knowledge to modify her practice to suit her bodily needs. She explained, “I have injuries all the time…. I have a [shoulder] injury, I have a [ankle] injury, so I understand that so there's ways of working around that [injuries].”

On the other end of the continuum, some participants explained that yoga is not challenging enough. These individuals reported preferring higher intensity exercise. In explaining his preference for high intensity exercise, one participant explained, “If I have like a limited time to work out, I would rather work out like lift or run, rather than yoga.”

**Subtheme four: Apprehension to yoga culture.** Both individuals who currently practice yoga and those who do not expressed apprehension about the culture of yoga in the United States. Specifically, these individuals reported apprehension regarding the social norms, expectations, and stereotypes associated with yoga practice. For example, some participants expressed apprehension regarding the privilege associated with yoga practice. One participant explained,

…there is definitely a lot of privilege involved…it depends on where you live of course…if you go to a yoga class like in a big city, like in the middle of town, it’s like the yoga studio you see people wearing pants that cost $200 just to do yoga, and yoga mats that cost $100 for a piece of rubber… like why?

Several participants expressed similar sentiments regarding the privilege and “chic” communities often associated with yoga studios.

Some participants wondered whether the way that yoga is currently practiced in mainstream settings in the United States has strayed from the roots and intention of the ancient practice. In describing the consumerism aspect of yoga, one participant stated “…they say it’s a spiritual process, but ‘Hey! Guess what! I will charge you for this
spiritual process.’’ In describing an article regarding cultural appropriation in yoga, another participant explained,

…[the article described] the fact that the Western practice of yoga is a lot more concentrated on the physical aspect of it, instead of the mental aspect of it. The article appeared to imply, that it just wasn’t as good, it wasn’t as pure as what the intention of yoga [originally] was. I don’t want to say shocking, or hurtful, you know, that feeling like ‘oh, let’s think about why is it that we’re really doing this… Are we doing this for its true purpose?

For this participant, the potential that yoga as she currently practices might be disingenuous and divergent from the intentions of the practice was hurtful to her and causes some apprehension to the practice.

The stereotypes associated with yoga practice also seem to invoke apprehension for individuals who practice yoga as well as for those who do not practice. In some instances, participants reported that they associate yoga with Eastern religion. However, nearly all of the participants explained that they associate yoga practice with non-Latino/a White, young, physically fit women. For example, some participants noticed mostly athletic bodies in classes and, in turn, felt out of place. One participant who has tried yoga but does not practice explained, “I’m really uncoordinated, I [feel] like a cow… you know, I’m not particularly limber so, you know, I just felt really [uncomfortable], I don’t need any more [things] to feel icky about.”

Other participants expressed apprehension to yoga due to their age, as these individuals expressed beliefs that yoga is mostly associated with young people. One participant explained, “most gyms are not geared to people that are 50 or 45 and older because I guess they want that look. That youthfulness and that whatever…Most gyms
does not cater to certain age groups.” Regarding gender, none of the men reported being a man as a barrier to yoga. However, all of the men explained that they associate yoga more with women, and one participant stated that he thinks that some men do not find yoga “macho” enough.

In addition to apprehension due to one’s body and age, some participants discussed feeling out of place due to their racial or ethnic identity. In describing her discomfort in her initial exposure to yoga, one African American participant who currently practices yoga explained, “to be honest with you, I didn't think ... I didn't see many people of color. It just seems like it was geared towards Caucasian females. That's all the class. The two classes I ever went, that's what was there.” Although this individual currently attends a yoga class comprised mostly of racial and ethnic minorities, she reported that this class is not offered frequently and that she would like to take more yoga classes. However, she explained that she remains apprehensive towards other yoga classes based on the assumption that she would be the only person of color. It is also important to note that she further indicated that that even if were more yoga classes available in her community, individuals in her community nonetheless perceive yoga as inaccessible to racial minorities. She explained that when learning that she does yoga, her friends will say:

“Wow, yoga. Nice.” “I wish I could do yoga,” and I will tell them, “Oh well, you can.” They said “You can afford to do that” or “You are able to do that.” Because they see yoga as unreachable.

**Subtheme five: Contextual limitations.** This subtheme is characterized by contextual limitations to yoga such as limited time, money, and access to yoga classes.
One participant practices yoga but expressed having limited access to yoga classes in her community:

Because we do have gyms, but they never have yoga classes. It's not something that they think people would be interested in because I've had memberships to several gyms and... I've never seen a class that has yoga there….these are things that I would have liked to be able to participate in, but for me to get that, I would have to go a distance. I want to go where I can be comfortable and [take] a beginners class [but] I really don't think I will have that opportunity.

Similarly, another participant was not aware of any yoga classes in his neighborhood. He reported: “I can’t say that [yoga] doesn’t exist, but it’s something I haven’t seen, or experienced, or heard of, so I can’t tell you if it’s happening in our Black community, in any churches.”

Some participants who do not practice yoga also reported cost as a barrier. In explaining the reasons for not having taken yoga classes in “boutique” studios, one participant stated “I wouldn’t even try because a class would be like $25 or $30.” A participant over the age of 65 expressed a similar sentiment: “There’s not a lot of extra money that people of my age would have available to be able to take classes.” It seems that these individuals did not perceive other options to practicing yoga apart from paying for classes. Although it is possible to practice yoga for free, such as at home, it is important to note that all of the participants who reported practicing at home already had a sufficient knowledge to practice yoga. Moreover, these individuals reported that they began yoga in structured classes.

**Differences Between non-Latino/a White individuals and Racial and Ethnic Minorities**

Participants across racial and ethnic groups generally described their experiences and beliefs about yoga similarly, with the largest differences emerging between
individuals who practice yoga and those who do not practice yoga. However, some differences between non-Latino/a White individuals and racial and ethnic minorities emerged.

Facilitating factors. Some racial and ethnic minorities, more than non-Latino White individuals, highlighted the positive social interactions experienced through yoga practice. For example, one participant who identifies as a racial minority described yoga as an important outlet for having positive interactions with other racial minority community members. Similarly, one participant who identifies as Latina expressed the camaraderie that she experiences as a result of practicing and teaching yoga. Regarding resources, non-Latino/a White individuals who practice yoga described having the financial means to pay for yoga classes more than racial or ethnic minorities who practice yoga. Moreover, non-Latino/a White individuals reported having convenient access to yoga classes more than racial or ethnic minorities who practice yoga.

Another difference that arose across racial and ethnic groups was related to individual-level resources. Non-Latino/a White individuals discussed having a natural predisposition that facilitates their yoga practice, such as personality traits and athleticism, more often than racial and ethnic minorities. Interestingly, only one racial or ethnic minority who currently practices yoga described herself as a natural fit in yoga.

Although exposure to yoga through a friend or relative was a commonly endorsed facilitating factor among non-Latino/a White individuals, no racial or ethnic minorities reported being exposed to yoga in this way. Instead, minorities reported being introduced to yoga by an institution or seeking it out on their own. Racial and ethnic minorities also
generally did not report exposure to various types of yoga, whereas this exposure was a common experience amongst non-Latino/a White individuals.

**Barriers to yoga.** Only racial or ethnic minorities who do not practice yoga reported limited knowledge as a barrier to yoga. On the other hand, some of the non-Latino/a White individuals who do not practice yoga reported that they had tried it before and/or that they have friends and relatives who currently practice. As such, these individuals reported more exposure to yoga and did not report limited knowledge as a barrier to yoga. Regarding spiritual or religious incongruence, racial and ethnic minorities reported that this factor is a barrier more often than non-Latino/a White individuals. Interestingly, some non-Latino/a White individuals explicitly stated that the spiritual aspects of yoga are not a hindrance, whereas some minorities reported this factor as an important barrier. However, it is important to note that despite some minorities endorsing spiritual or religious incongruence as a barrier to yoga practice, they nonetheless continue to practice cautiously.

Regarding unmet needs, there was no difference in the rates of endorsing this barrier between non-Latino/a White individuals and racial or ethnic minorities. On the other hand, more racial and ethnic minorities reported more contextual limitations such as cost and limited access to yoga classes as barriers to yoga. Cost was not a barrier to yoga for any of the non-Latino/a White individuals who do not practice yoga, whereas it was barrier for non-practicing racial and ethnic minorities. In other words, cost does not
generally seem to prevent the non-practicing non-Latino/a White individuals from practicing yoga, whereas it could be an important limiting factor for racial and ethnic minorities.

Large discrepancies emerged between non-Latino/a White individuals and racial or ethnic minorities regarding access to yoga classes. Neither non-Latino/a White individuals who practice yoga nor those who do not practice perceived access to yoga classes as a barrier. Conversely, both racial and ethnic minorities who practice and those who do not reported having limited access to yoga classes in their community.

Regarding apprehension to yoga, both non-Latino/a White individuals and racial and ethnic minorities endorsed this subtheme. Both groups discussed feeling out of place due to not having a physique that aligns with stereotypes of individuals who practices yoga, whereas only racial and ethnic minorities discussed feeling out of place due to their racial or ethnic identity. Although none of the men who participated explicitly stated that being a man is a barrier to yoga practice, they nonetheless explained that there were cognizant of typically being one of the only men in class. Regarding men who do not practice yoga, one participant explained that some men might not find yoga “macho” enough.

Interestingly, nearly all of the participants maintained similar stereotypes regarding who practices yoga. Some participants associate yoga with Hinduism and Eastern religion; however, nearly all also associated yoga practice with non-Latino/a White young women who are physically fit. This stereotype was reported even by individuals currently practicing yoga in classes largely comprised of racial and ethnic minorities.
The purpose of this study was to explore potential factors underlying the discrepancy in yoga practice between non-Latino/a White individuals and racial and ethnic minorities. Considering the limited research in this area, I employed a convergent parallel mixed method design to comprehensively address the aims of the study. Specifically, I examined barriers, beliefs, knowledge, experiences and emotions related to yoga practice amongst a racially and ethnically diverse sample. This study is an important contribution to the literature on yoga, as it is the first to systematically examine the discrepancy in yoga practice between non-Latino/a White individuals and racial and ethnic minorities.

Several important contributions to the literature emerged from the quantitative and qualitative findings. The qualitative results highlighted the benefits that participants experience as a result of practicing yoga. For example, participants across racial and ethnic groups described benefits such as enhanced physical fitness, tranquility, and even hope during a hopeless time as a result of yoga practice. The quantitative results indicated that individuals across racial and ethnic groups generally endorse holistic beliefs and maintain favorable beliefs about yoga. However, differences in knowledge of yoga between non-Latino/a White individuals and racial and ethnic minorities emerged both within the qualitative and quantitative components. Similarly, across both research modalities, differences between non-Latino/a White individuals and racial and ethnic minorities emerged in resources that foster yoga practice, suggesting that non-Latino/a White individuals may have more resources that facilitate yoga practice. Finally, within
both research modalities, apprehension to the social norms, expectations, and stereotypes related to yoga practice emerged as an important barrier to yoga across racial and ethnic groups, and especially among racial and ethnic minorities. Taken together, these findings also begin to elucidate the level of yoga health literacy across racial and ethnic groups, which can be utilized to design interventions to foster better health behaviors.

I will first present the aforementioned important contributions of this study, which are grouped by: benefits associated with yoga, beliefs and knowledge of yoga, resources, yoga culture and yoga stereotypes. Next, I present implications for clinicians, researchers, and specifically for counseling psychologists. I then present the limitations and provide an overall summary of the study in the conclusion.

**Benefits Associated with Yoga**

The following section details benefits associated with yoga as yielded from the qualitative portion of the study. Consistent with existing research (e.g. Riley & Park, 2015; Smith, Greer, Sheets & Sheets, 2011), most interview participants across racial and ethnic groups who practice yoga reported gaining physical, mental, and spiritual benefits as a result of practicing yoga. Interview participants also described experiencing positive social interactions and beneficial emotions as a result of yoga such as agency and empowerment, which is consistent with existing research (e.g., Keosaian et al., 2016). Feelings of tranquility and stress relief were also common amongst participants. In fact, several participants across racial and ethnic groups described the times that they practice yoga as one of the only times in which they experience relief from the stresses of
everyday life. This finding is especially important considering the high levels of stress experienced among adults in the U.S., and particularly among racial and ethnic minorities (American Psychological Association, 2012).

Despite non-Latino/a White individuals and racial and ethnic minorities describing similar benefits related to yoga, some differences related to benefits emerged. One notable difference that emerged between non-Latino/a White individuals and racial and ethnic minorities was that some minorities highlighted the positive social interactions as a result of yoga practice more than non-Latino/a White individuals. For example, one individual who identifies as a racial minority discussed the benefit of feeling a part of a group of racial minority women engaged in healthy behavior. He contrasted this exposure to racial minorities supporting one another to the negative portrayals of racial minorities often presented in media. This exposure to other people of color engaging in healthy behavior is important considering the negative ways that racial and ethnic minority individuals are often portrayed in the media (e.g., Dixton & Linz, 2000). Being regularly exposed to negative portrayals of one’s racial group in the media has been associated with feelings of worthlessness and with stereotype threat, which is predictive of a diminished sense of self and impaired performance on various tasks (Lamont, Swift, Abrams, 2015; Dixton & Linz, 2000). However, for at least one participant in my study, it seems that being exposed to, and engaging with, other people of color practicing yoga can help to mitigate this negative exposure.

Overall, the findings of this study suggest that individuals across racial and ethnic groups experience similar benefits related to yoga. Moreover, the findings also suggest that yoga can help to mitigate difficult experiences commonly experienced by racial and
ethnic minorities such as negative societal stereotypes and high levels of stress. As such, the findings of this study suggest that the discrepancy in yoga practice between non-Latino/a White individuals and racial and ethnic minorities is not accounted for by differences in benefits related to yoga. Therefore, it is likely that other factors underlie the discrepancy in yoga practice between these two groups.

**Beliefs and Knowledge Related to Yoga**

**General findings.** Consistent with existing research, individuals in the quantitative portion of the study who endorsed more holistic beliefs and favorable beliefs about yoga were more likely than those who did not endorse these beliefs to practice yoga (Testerman, Morton, Mason, & Ronan, 2004). No previous studies included knowledge of yoga as a construct in understanding factors underlying yoga practice. In the quantitative portion of the current study, higher levels of knowledge of yoga were associated with favorable beliefs about yoga. However, there was no significant difference in knowledge of yoga between participants who practice yoga and those who do not practice. This finding may be explained by the fact that there was minimal variability in knowledge scores. As such, it is possible that larger effects would have been needed to detect any differences in knowledge of yoga. Additionally, the qualitative findings indicated that participants generally reported having been exposed to yoga regularly regardless of whether they practice yoga or not. Therefore, participants may have possessed general knowledge of yoga regardless of whether they currently practice
yoga. This general knowledge may be especially prevalent among non-Latino/a White individuals, as this group reported more exposure to yoga relative to racial and ethnic minorities.

**Discrepancy across racial and ethnic groups.** Within the quantitative portion, there were no significant mean differences among the racial and ethnic groups in holistic beliefs. This finding is important, as extant research (Testerman et al., 2004) and the current study indicate that holistic beliefs are associated with yoga practice. As such, the finding suggests that holistic beliefs do not account for the discrepancy in yoga practice between non-Latino/a White individuals and racial and ethnic minorities.

In the quantitative analysis, the only significant differences that emerged in beliefs about yoga and knowledge of yoga were between non-Latino/a White and Latino/a individuals. Regarding beliefs about yoga, non-Latino/a White individuals endorsed more favorable beliefs about yoga relative to Latino/as despite a higher proportion of Latino/as reporting that they currently practice yoga. However, this unexpected finding is elucidated when comparing the subscales of the beliefs about yoga measure. Specifically, there were no differences between non-Latino/a White and Latino/a participants in the expected benefits subscale. However, Latino/a participants had significantly higher scores on the expected discomfort and social norms subscales than non-Latino/a White participants. As such, the overall lower beliefs about yoga scores among Latino/a participants seem to be better explained by barriers to yoga such
as expected discomfort and social norms related to yoga. However, these barriers do not seem to preclude Latino/a individuals from practicing yoga, as these individuals nonetheless expect benefits from practice.

The difference in beliefs about yoga between non-Latino/a White individuals and racial and ethnic minorities was also explored through moderation analyses including holistic beliefs and knowledge of yoga. These analyses indicated that neither holistic beliefs nor knowledge of yoga moderated the relationship between beliefs about yoga and racial and ethnic minorities. However, the results suggest that when controlling for knowledge of yoga, the difference in beliefs about yoga between non-Latino/a White and Latino/a participants was no longer statistically significant. In other words, knowledge seems to explain enough of the variance in beliefs about yoga between non-Latino/a White individuals and racial and ethnic minorities that no significant differences in beliefs about yoga remain. It is also important to note that there was not sufficient power to compare beliefs about yoga between non-Latino/a White and Latino/a individuals who practice yoga. Therefore, it is possible that the difference in beliefs about yoga would no longer reach significance when only assessing individuals who currently practice yoga.

Similar to beliefs about yoga, Latino/a individuals had significantly lower knowledge scores than non-Latino White individuals despite practicing yoga more. Additionally, racial and ethnic minorities generally endorsed items such as “I don’t know how to get started” more than non-Latino/as White individuals. The qualitative findings also support this notion, as the only participants who described limited knowledge of yoga as a barrier to practicing yoga were racial or ethnic minorities who are not practicing yoga. In interpreting this finding, it is important to note that minorities
reported less exposure to yoga within their families, friends, and communities than non-Latino/a White individuals. Further, among the minorities who practice yoga, none reported being exposed or introduced to yoga by a friend or relative. On the other hand, non-Latino/a White individuals who practice and do not practice yoga generally reported regular exposure to yoga and having friends and family who practice yoga. As such, it is plausible that the difference in knowledge of yoga between non-Latino/a White individuals and racial and ethnic minorities can be explained by generally having limited exposure to yoga and having fewer opportunities to learn about yoga. This idea aligns with existing research on recreation among racial and ethnic minorities that has highlighted that minorities generally have less exposure to organized leisure activities, which seems to be linked to the days of segregation (Henderson & Ainsworth, 2000). Henderson and Ainsworth (2002) suggested that, in turn, this limited exposure hinders racial and ethnic minority engagement in fitness and recreation activities.

**Resources**

In exploring resources that foster and hinder yoga practice, important differences between non-Latino/a White individuals and racial and ethnic minorities emerged. Both within the quantitative and qualitative components of the study, racial and ethnic minorities reported that they experience limited resources as a barrier to yoga practice. This finding is consistent with existing research, which has highlighted limited resources as a main barrier to yoga for Black and African American individuals (Tenfelde, Hatchett, & Sabam, 2017). Resources such as transportation and money were also important predictors of yoga practice. Within the quantitative portion of the study, Latinos/as reported limited transportation as a barrier to yoga more than non-Latino/a
White and Black or African American individuals. Within both the quantitative and qualitative portions, the cost of yoga was a significant barrier to yoga for Latino/a individuals and racial and ethnic minority groups more generally. Conversely, as found in the qualitative section of the study, none of the non-Latino/a White individuals reported cost as a current barrier to yoga.

It is important to note that some participants across racial and ethnic groups reported having previously benefitted from donation-based yoga classes. This finding is important, as previous research has generally only focused on paid yoga classes rather than include other models such as donation-based classes and work exchange programs (e.g., karma yoga programs). In other words, although cost may be a barrier to practicing yoga for some, options for free yoga classes exist, which can help to reduce barriers to yoga. However, it is important for individuals to first have knowledge of the existence of free yoga classes to benefit from these classes. Further, research has suggested that an important criterion for the success of yoga as a mental health intervention is taking a class with a qualified teacher in a group setting (Macy et al., 2015). As such, practicing yoga at home for beginners may not result in optimal mental health benefits.

Within the qualitative component of the study, convenient access to yoga classes was an important predictor of yoga practice. Among both non-Latino/a White individuals who practice yoga and those who do not, none described limited access to yoga as a barrier. On the other hand, racial and ethnic minorities generally reported having limited access to yoga classes in their communities. In fact, among racial and ethnic minorities who practice and do not practice yoga, most had difficulty identifying any yoga classes in
their community. Instead, some of the racial and ethnic minorities who practice described seeking yoga outside of their immediate community.

The findings of this study suggest that the limited access to yoga classes in the neighborhoods of the racial and ethnic minorities is not an indication of their level of interest in yoga but potentially related to overall limited community resources such as recreational facilities and programs for enhancing well-being. This finding aligns with a recent research focused on perceptions of yoga among African Americans and/or Black women (Tenfeld et al., 2017), which found that participants generally maintained positive beliefs about yoga and expressed some interest in practicing. However, the current study expands previous literature by contextualizing limited access to yoga in the overall limited community resources (e.g., recreational facilities) experienced by racial and ethnic minorities. In discussing limited access to yoga classes, several racial and ethnic minority interview participants described overall limited resources in their communities. This discussion tended to spark a conversation about the current struggles in their communities. For example, one Latina woman explained during her interview that Latino/as could benefit from yoga because this population “works so much” and experiences high levels of stress without many opportunities for reprieve. Similarly, one African American participant discussed the overall limited access to healthy activities for individuals of all ages in his community. As such, this study highlights that limited access to yoga in racial and ethnic minority communities may be an indication of a larger disparity in access to community resources that foster well-being.

In addition to external resources such as access to yoga and financial means to pay for classes, participants who practice yoga also discussed individual-level resources.
Participants in the qualitative portion reported characteristics such as confidence, flexibility, and athleticism as factors that facilitate their yoga practice. Several participants described themselves as a “natural fit” to yoga based on their physical and personality traits. However, non-Latino/a White individuals tended to describe themselves as typical yoga practitioners more than racial and ethnic minorities. In fact, despite regular yoga practice, most of the racial and ethnic minorities did not describe themselves as a “natural fit” to yoga.

**Yoga Culture and Yoga Stereotypes**

An important and unique contribution to the literature on yoga that emerged in the quantitative and qualitative components of this study is the salience of yoga culture. Specifically, social norms, expectations, and stereotypes associated with yoga emerged as important considerations among both individuals who practice yoga and those who do not practice yoga with both portions of the study. However, the existing research on yoga has largely focused on the benefits of this practice rather than individual experiences of yoga classes. Although some studies have explored barriers to yoga across racial and ethnic groups (e.g., Brems et al., 2015) and specifically with racial and ethnic minority groups (e.g., Tendelde et al., 2017), these studies did not highlight the role of yoga stereotypes and yoga culture on participants’ experiences of yoga. However, within this study, qualitative participants across racial and ethnic groups, including individuals who practice yoga and those who do not practice, described some apprehension regarding yoga culture in the United States. Similarly, participants in the quantitative component also reported experiencing barriers to yoga related to yoga culture.
Although individuals across racial and ethnic groups described yoga culture as a barrier to practice, racial and ethnic minorities generally described more barriers related to yoga culture than non-Latino/a White individuals. For example, within the quantitative portion, some minority groups reported barriers such as religious or spiritual incongruence, disliking the language used in yoga classes, and the clothing associated with yoga, more often than non-Latino/a White individuals.

Within the qualitative component of the study, some individuals were critical of the privilege and consumerism within yoga culture. This finding aligns with existing research. For example, in one study focused on African American women’s perceptions of yoga, one participant explained that some women who attend yoga classes consider their outfits to be “like a fashion show” (Tendfeld et al., 2017). Similarly, some interview participants in the current study described yoga as chic and as a trend. For some of these individuals, the cost of attending yoga classes was not prohibitive. Instead, their apprehension or “distaste” related to the consumerism aspect of yoga culture was a barrier to them practicing yoga. For others, the apprehension to yoga was related to concerns that yoga as is practiced in the U.S. might be disingenuous and disconnected from the original intentions of the practice.

Another important contribution to the yoga literature that emerged from this study was the relevance of stereotypes regarding the individuals who practice yoga. Across participants in the qualitative portion, individuals described similar stereotypes of individuals who practice yoga. Although some participants associated yoga with Eastern religion, nearly all participants described the typical individual who practices yoga as non-Latino/a White, female, young, and physically fit. This stereotype was reported even
by one individual whose main exposure to yoga has been in a yoga class comprised of African American and Latino/a individuals. However, for this individual and some of the other interview participants who currently practice yoga, the stereotype did not seem to impede their practice significantly. Despite these individuals describing a specific yoga stereotype, they also explained that “all sorts of people” practice yoga and described being exposed to some diversity in the identity of individuals in yoga classes.

However, for other individuals, the stereotype of a typical yoga practitioner was a barrier. Within the qualitative component, some individuals described feeling self-conscious about their bodies in yoga class, as they perceived yoga to be for physically fit individuals. Some participants also discussed feeling out of place in yoga due to their age and described yoga to be associated with youth. Another important barrier related to yoga stereotypes that emerged was feeling out of place due to one’s racial and/or ethnic identity. Some individuals explicitly stated in their interviews that they felt discomfort being one of the only racial or ethnic minorities in the class whereas others spoke more passively about the discomfort. Further, the only barrier to yoga in the quantitative portion in which all racial and ethnic minority groups endorsed significantly more than non-Latino/a White individuals was, “Yoga is only for White people.”

Implications

**Clinical implications.** It is important for clinicians to be open to recommending yoga to any client who might benefit regardless of racial and ethnic identity, as the results of the study suggest that the discrepancy in yoga practice between non-Latino/a White individuals and racial and ethnic minorities is not likely explained by a difference in beliefs, interest, or benefits related to yoga to yoga. More specifically, individuals across
racial groups generally maintained favorable beliefs about yoga and reported similar physical, mental, and spiritual benefits related to yoga. It is also important for clinicians to recognize that yoga may be especially helpful in mitigating disparities commonly experienced among racial and ethnic minorities. For example, clients across racial and ethnic groups experience stress relief as a result of practicing yoga (Taspinar et al., 2014). However, considering that racial and ethnic minorities generally report more stress than non-Latino/a White individuals (American Psychological Association, 2012), yoga could be an especially helpful intervention for minority clients.

The positive social interactions that racial and ethnic minority participants reported as a result of practicing yoga with other minorities presents another significant clinical implication. Specifically, one participant reported that practicing yoga among other racial and ethnic minorities mitigates negative portrayals of people of color often seen in the media and in his neighborhood. As such, it is important for clinicians to educate themselves on the variety of classes offered including inclusive yoga spaces in order to discuss the type of yoga setting that would be most comfortable and beneficial for the client.

In recommending yoga to clients, it is also crucial to recognize that resources play a large role in predicting yoga practice. Clients who have regular exposure to yoga through friends and family, convenient access to yoga classes, and the financial means to pay for yoga classes, are more likely to practice. As such, it is plausible that these individuals would be more likely to follow a clinician’s recommendation to practice yoga. However, individuals with limited exposure to yoga, knowledge of yoga, access to yoga classes, and financial means to pay for class will likely face more obstacles in trying
yoga. Generally, racial and ethnic minorities reported more of these barriers to yoga than non-Latino/a White individuals. Therefore, in recommending yoga to all clients, and particularly racial and ethnic minorities, it is important to recognize that some individuals may experience more barriers to yoga and in turn need more support in seeking yoga. For example, clinicians could provide clients with information about yoga, its benefits, and address any potential misconceptions related to yoga. Clinicians could also familiarize themselves with local classes in order to be able to discuss specific class recommendations to clients. For example, for clients who have financial limitations, clinicians could recommend donation-based and/or free community-sponsored classes. In sum, in recommending yoga to clients, it is imperative for clinicians to first understand the client’s resources to ascertain the level of support that the individual may need in pursuing yoga.

In recommending yoga to clients, it is also vital for clinicians to consider yoga stereotypes and reactions to yoga culture with in the United States. Including individuals who practice yoga and those who do not, participants across racial and ethnic groups associated yoga with non-Latino/a White, young, physically fit women. This stereotype remained even for individuals who primarily practice yoga in classes comprised of racial and ethnic minority individuals. Whether due to their age, level of physical fitness, or racial or ethnic identity, some individuals seem to perceive yoga as inaccessible. Therefore, it is important for clinicians to recognize that some individuals may immediately be closed to the idea of practicing yoga because they do not see themselves as a “natural fit.”
It is also crucial for clinicians to recognize that racial and ethnic minorities generally reported more barriers to yoga related to the culture of yoga classes. For example, racial and ethnic minorities were wearier of the spiritual aspects of class and reported more concerns about the language used in class as well as clothing associated with yoga. As such, before recommending yoga to clients, it is important for clinicians to discuss clients’ stereotypes, perceptions, and reservations related to yoga, especially when recommending yoga to clients who are less likely to practice yoga. Additionally, as mentioned earlier, it is important for clinicians to educate themselves on the variety of yoga classes offered, including inclusive classes. In sum, it is imperative for clinicians to recognize that simply recommending yoga to clients may not be sufficient for some individuals. For individuals who are less likely to practice yoga, these individuals may need more support such as knowledge about yoga and information about inclusive yoga classes to increase accessibility to yoga.

**Research Implications.** Latinos/as reported lower knowledge of yoga than non-Latino/a White individuals, despite a higher proportion of Latinos/as reporting that they practice yoga. However, due to a small sample size of Latino individuals who practice yoga, it was not possible to compare knowledge of yoga between Latino/a White individuals and racial and ethnic minorities solely among yoga practitioners. Therefore, exploring knowledge of yoga solely among a racially and ethnically diverse sample of individuals who practice yoga could help to clarify whether there are differences in knowledge of yoga among racial and ethnic groups are accounted for by yoga practice.

Considering the large age range in the current study, future research could take age into account in exploring experiences of yoga, especially considering that participants
generally associated yoga with “young” individuals. Similarly, it could be helpful to conduct a similar study in a rural or suburban region, as the geographic region likely influenced individuals’ experiences of yoga. Additionally, taking social class into account could help to elucidate the role of socioeconomic considerations in the discrepancy of yoga practice between non-Latino/a White individuals and racial and ethnic minorities.

Considering that some participants described experiencing inclusive yoga classes aimed toward diverse audiences, researchers might also consider exploring individuals’ experiences of yoga in inclusive yoga classes and those geared those racial and ethnic minorities. As such, researchers could help to clarify whether barriers related to yoga stereotypes and yoga culture lessens for individuals primarily practicing in inclusive yoga classes. Systematically studying experiences of individuals practicing in inclusive classes and those geared toward diverse audiences could also help to elucidate how stereotypes related to yoga form and ways to successfully present yoga as an inclusive practice.

The results of this study can also help researchers to begin developing a model of yoga health literacy across racial and ethnic groups. This model can be utilized to specifically and efficiently target factors underlying the discrepancy in yoga practice between non-Latino/a White individuals and racial and ethnic minorities. Moreover, enhancing yoga health literacy might attenuate the discrepancy in yoga practice leading to increased yoga uptake among racial and ethnic minorities thereby enhancing the health of these populations (Berkman et al., 2011). Additionally, including general health measures in the study of yoga uptake and barriers to yoga can help to integrate important health considerations in interventions aimed at enhancing accessible to yoga.
Implications for counseling psychologists. The values of counseling align well with the implications of this study, as counseling psychology embodies a holistic and multidisciplinary approach to care (Packard, 2009). The numerous physical, mental, and spiritual benefits related to yoga expressed by the participants suggest that counseling psychologists can recommend yoga to clients as an intervention to improve health. Moreover, considering that the multifaceted and preventative aspects of yoga align with the focus of prevention within counseling psychology (Packard, 2009), yoga can be an important tool for maintaining health and preventing disease. However, the discrepancy in yoga practice between non-Latino/a White individuals and racial and ethnic minority presents a social injustice, especially considering that individuals across racial and ethnic groups described similar interest in yoga. The focus on social justice within counseling psychology (Packard, 2009) calls for counseling psychologists to assist in addressing this discrepancy in access. For example, counseling psychologists could partner with local community-based organizations to offer free yoga classes in neighborhoods with limited access to yoga classes. Considering that racial and ethnic minorities reported benefitting from taking yoga classes with other minorities, counseling psychologists could also partner with grass roots organizations aimed at sharing yoga with racial and ethnic minorities to increase access to yoga and co-create inclusive yoga classes.

The commitment to policy-level interventions within counseling psychology (Packard, 2009) suggests that counseling psychologists are in a unique position to advocate for policy to increase access to yoga, especially for racial and ethnic minority populations. This imperative aligns with conclusions drawn from a recent review of mindfulness literature suggesting that it is time for research to be translated to effective
and sustainable community mindfulness programs (Creswell, 2017). Counseling psychologists could also help to ensure that yoga is recognized as a preventative and ameliorative intervention with the healthcare system. In turn, this recognition could help to integrate yoga as a viable intervention within healthcare. Moreover, by addressing the discrepancy in yoga practice, counseling psychologists can help to reduce health disparities experienced by racial and ethnic minorities.

Limitations

One limitation in the current study is that the quantitative analyses comparing racial and ethnic groups included both individuals who practice yoga and those who do not practice. Because there was not a sufficient number of participants who practice yoga within each of the racial and ethnic groups, yoga experience could not be controlled for in the analyses. As such, it was not possible to assess whether beliefs of yoga, knowledge of yoga, and barriers to yoga between racial and ethnic groups varied by yoga experience. However, responses across racial and ethnic groups were aggregated to explore these variables based on yoga experience more generally. In other words, for some analyses, these variables were aggregated across racial and ethnic groups to determine whether there were differences based on whether the individual currently practices yoga or does not practice. These analyses helped to determine general factors across racial and ethnic groups, rather than between these groups, that are predictive of yoga practice. Another limitation is that the proportion of individuals practicing yoga in the quantitative portion of the study did not reflect national trends (i.e., Latino/a individuals reported practicing
yoga more than non-Latino/a White individuals). This difference may be related to the fact that the title of the study was included in the recruitment materials, which may have attracted minorities who are interested in yoga.

Another limitation in the study is the limited variability in the knowledge of yoga scores. Although having high levels of exposure to yoga could account for the limited range of the knowledge scores, it is possible that the knowledge measure needed further refinement. Because there was no existing measure of yoga knowledge, the measure was developed for this study and has not undergone comprehensive psychometric validation. As such, it is plausible that the measure needs further refinement to become more sensitive to differences in levels of yoga knowledge, especially considering that the internal consistency of the measure was low.

Potential issues of generalizability exist within this study, as only individuals who could read English were included in the study. As such, this study may not be generalizable to individuals with limited English proficiency, such as recent immigrants to the U.S.. Similarly, only individuals who had access to Amazon MTurk account were included in the quantitative portion, limiting the generalizability of the findings to individuals regularly utilizing the Internet. Similarly, socioeconomic status was not controlled for in the study, which limits the ability to ascertain the level to which this factor played in the results. The difference in the recruitment methods for the quantitative and qualitative portion is also another limitation. Specifically, the quantitative sample was drawn from a national sample whereas the qualitative participants were recruited only within Miami. Therefore, the findings of the two modalities should be converged with caution. Another limitation related to the generalizability of the study is based on the
qualitative component being conducted in Miami. Considering that 80% of the individuals in Miami identify as a racial or ethnic minority, participants’ experiences of yoga may not reflect those of individuals in other part of the United States in which racial and ethnic minorities are underrepresented.

**Conclusion**

In this study, I utilized a mixed method approach to explore potential factors underlying the discrepancy in yoga practice between non-Latino/a White individuals and racial and ethnic minorities. Several important findings emerged from the literature highlighting similarities and differences across racial and ethnic groups. Generally, individuals across racial and ethnic groups maintained favorable beliefs about yoga and reported similar benefits as a result of practicing yoga. However, some racial and ethnic minorities also discussed yoga as a tool to mitigate distressing experiences that are commonplace within their communities. Additionally, some minorities described benefitting from inclusive yoga classes aimed a diverse group of participants highlighting the potential of yoga to increase the well-being of racial and ethnic minorities.

The findings also highlight common barriers to yoga such as limited access and knowledge of yoga as well as yoga stereotypes and the culture of yoga classes. Individuals across racial and ethnic groups expressed apprehension regarding the exclusivity associated with yoga and questioned whether they would be a “natural fit” in yoga. However, racial and ethnic minorities generally reported more barriers to yoga than non-Latino/a White participants and fewer facilitating factors.
Most importantly, this study highlights that the discrepancy in yoga practice between non-Latino/a White individuals and racial and ethnic minorities is not likely explained by unfavorable beliefs, interest, or benefits related to yoga. Instead, the study highlights that the discrepancy is largely explained by a difference in barriers to yoga specifically related to external resources and the culture of yoga in the U.S. As such, tangible interventions described earlier may help to address these barriers to yoga thereby increasing access to yoga and enhancing overall health in the U.S.
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### Table 1

*Descriptive Statistics for Quantitative Sample (N=458)*

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<th>Age</th>
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<tr>
<td>19-31</td>
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<td>32-44</td>
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<tr>
<td>45-57</td>
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<td>58-70</td>
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<td>9%</td>
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<td>71-77</td>
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<td>&lt;1%</td>
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<thead>
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<th>Household income</th>
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<td>$0-40,000</td>
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</tr>
<tr>
<td>$40,001-60,000</td>
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</tr>
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<td>8%</td>
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<td>$100,001-150,000</td>
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<td>6%</td>
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<td>$150,001-200,000</td>
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<td>$200,000-780,000</td>
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<table>
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<th>Disability</th>
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<tr>
<td>No</td>
<td>406</td>
<td>89%</td>
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<tr>
<td>Yes</td>
<td>52</td>
<td>11%</td>
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<table>
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<tr>
<th>Highest level of formal education</th>
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<td>Elementary school</td>
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<tr>
<td>High school</td>
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<tr>
<td>Some college</td>
<td>121</td>
<td>26%</td>
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<tr>
<td>College</td>
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<td>48%</td>
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<tr>
<td>Master’s degree</td>
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<td>11%</td>
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<tr>
<td>Doctorate degree</td>
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<table>
<thead>
<tr>
<th>Religion</th>
<th>n</th>
<th>%</th>
</tr>
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<tbody>
<tr>
<td>Not religious or spiritual</td>
<td>142</td>
<td>31%</td>
</tr>
<tr>
<td>I am spiritual but not religious</td>
<td>68</td>
<td>15%</td>
</tr>
<tr>
<td>Catholic</td>
<td>66</td>
<td>14%</td>
</tr>
<tr>
<td>Non-denominational Christian</td>
<td>43</td>
<td>9%</td>
</tr>
<tr>
<td>Other Christian</td>
<td>32</td>
<td>7%</td>
</tr>
<tr>
<td>Baptist</td>
<td>31</td>
<td>7%</td>
</tr>
<tr>
<td>Hindu</td>
<td>21</td>
<td>5%</td>
</tr>
<tr>
<td>Methodist</td>
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<td>3%</td>
</tr>
<tr>
<td>Other religion</td>
<td>13</td>
<td>3%</td>
</tr>
<tr>
<td>Buddhist</td>
<td>10</td>
<td>2%</td>
</tr>
<tr>
<td>Pentecostal</td>
<td>7</td>
<td>2%</td>
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<tr>
<td>Muslim</td>
<td>6</td>
<td>1%</td>
</tr>
<tr>
<td>Presbyterian</td>
<td>5</td>
<td>1%</td>
</tr>
<tr>
<td>Frequency of yoga practice</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>------------------------------------------------</td>
<td>-----</td>
<td>----</td>
</tr>
<tr>
<td>1 time per week</td>
<td>13</td>
<td>10%</td>
</tr>
<tr>
<td>2 times per week</td>
<td>28</td>
<td>22%</td>
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<tr>
<td>3 times per week</td>
<td>31</td>
<td>24%</td>
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<tr>
<td>4+ times per week</td>
<td>39</td>
<td>30%</td>
</tr>
<tr>
<td>1 time per month</td>
<td>1</td>
<td>1%</td>
</tr>
<tr>
<td>2-3 times per month</td>
<td>3</td>
<td>3%</td>
</tr>
<tr>
<td>1 time every few months</td>
<td>3</td>
<td>3%</td>
</tr>
<tr>
<td>Inconsistent practice</td>
<td>9</td>
<td>7%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Length of yoga practice</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1-12 months</td>
<td>50</td>
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<tr>
<td>1-2 years</td>
<td>31</td>
<td>24%</td>
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<tr>
<td>3-6 years</td>
<td>29</td>
<td>23%</td>
</tr>
<tr>
<td>6+ years</td>
<td>17</td>
<td>14%</td>
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<table>
<thead>
<tr>
<th>Proportion of yoga practice within groups</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Latino/a</td>
<td>55%</td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td>35%</td>
<td></td>
</tr>
<tr>
<td>African American or Black</td>
<td>32%</td>
<td></td>
</tr>
<tr>
<td>Non-Latino/a White</td>
<td>21%</td>
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</table>
Table 2

*Gabriel’s Post Hoc For Significant MANOVA Results*

<table>
<thead>
<tr>
<th>Racial and Ethnic Identity</th>
<th>Mean Diff</th>
<th>Std. Error</th>
<th>Lower Bound</th>
<th>Upper Bound</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beliefs of yoga</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Non-Latino White vs.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Latino/a</td>
<td>3.28*</td>
<td>1.31</td>
<td>.05</td>
<td>6.50</td>
</tr>
<tr>
<td>African America or Black</td>
<td>-2.33</td>
<td>2.16</td>
<td>-7.22</td>
<td>2.57</td>
</tr>
<tr>
<td>Asian</td>
<td>1.04</td>
<td>1.55</td>
<td>-2.68</td>
<td>4.76</td>
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<tr>
<td>Latino/a vs.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>African America or Black</td>
<td>-5.60</td>
<td>2.41</td>
<td>-11.75</td>
<td>.54</td>
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<td>Asian</td>
<td>-2.24</td>
<td>1.89</td>
<td>-7.21</td>
<td>2.73</td>
</tr>
<tr>
<td>African American or Black vs.</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td>3.36</td>
<td>2.55</td>
<td>-3.28</td>
<td>10</td>
</tr>
<tr>
<td>Knowledge of yoga</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Latino White vs.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Latino/a</td>
<td>.77*</td>
<td>.29</td>
<td>.06</td>
<td>1.49</td>
</tr>
<tr>
<td>African America or Black</td>
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<td>.48</td>
<td>-1.15</td>
<td>1.02</td>
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<td>Asian</td>
<td>.63</td>
<td>.34</td>
<td>-.20</td>
<td>1.45</td>
</tr>
<tr>
<td>Latino/a vs.</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>African America or Black</td>
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<td>.53</td>
<td>-2.20</td>
<td>.52</td>
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<td>Asian</td>
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<td>.42</td>
<td>-1.25</td>
<td>.95</td>
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<tr>
<td>African American or Black vs.</td>
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<td></td>
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<td>Asian</td>
<td>.69</td>
<td>.56</td>
<td>-.78</td>
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</table>

* p < .05.
Table 3

Chi Square Results Based on Racial and Ethnic Group Comparisons

<table>
<thead>
<tr>
<th>Barriers Expressed to Yoga</th>
<th>$\chi^2$</th>
<th>df</th>
<th>$p$</th>
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</thead>
<tbody>
<tr>
<td>Practice</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interest</td>
<td>13.59</td>
<td>3</td>
<td>.004</td>
</tr>
<tr>
<td>Time</td>
<td>6.56</td>
<td>3</td>
<td>.088</td>
</tr>
<tr>
<td>Cost</td>
<td>18.76</td>
<td>3</td>
<td>.000</td>
</tr>
<tr>
<td>Busy schedule</td>
<td>5.45</td>
<td>3</td>
<td>.142</td>
</tr>
<tr>
<td>Lack of transportation</td>
<td>43.73</td>
<td>3</td>
<td>.000</td>
</tr>
<tr>
<td>I don’t know how to get started</td>
<td>13.51</td>
<td>3</td>
<td>.004</td>
</tr>
<tr>
<td>I don’t know how to pick a class</td>
<td>7.32</td>
<td>3</td>
<td>.062</td>
</tr>
<tr>
<td>I don’t know how to find a qualified teacher</td>
<td>7.00</td>
<td>3</td>
<td>.072</td>
</tr>
<tr>
<td>I had a bad experience with yoga</td>
<td>49.70</td>
<td>3</td>
<td>.000</td>
</tr>
<tr>
<td>I am not flexible enough</td>
<td>11.62</td>
<td>3</td>
<td>.009</td>
</tr>
<tr>
<td>I am not athletic enough</td>
<td>7.31</td>
<td>3</td>
<td>.063</td>
</tr>
<tr>
<td>I have health issues</td>
<td>6.86</td>
<td>3</td>
<td>.076</td>
</tr>
<tr>
<td>I don’t like the way I’d have to dress</td>
<td>15.33</td>
<td>3</td>
<td>.002</td>
</tr>
<tr>
<td>I don’t like the language used in yoga</td>
<td>21.78</td>
<td>3</td>
<td>.000</td>
</tr>
<tr>
<td>I don’t feel as though I’d fit in</td>
<td>5.59</td>
<td>3</td>
<td>.133</td>
</tr>
<tr>
<td>Yoga seems to be only for women</td>
<td>21.32</td>
<td>3</td>
<td>.000</td>
</tr>
<tr>
<td>Yoga seems to be only for skinny people</td>
<td>8.52</td>
<td>3</td>
<td>.036</td>
</tr>
<tr>
<td>Threat</td>
<td>$X^2$</td>
<td>df</td>
<td>$p$</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>-------</td>
<td>----</td>
<td>-----</td>
</tr>
<tr>
<td>Yoga seems to be only for young people</td>
<td>9.79</td>
<td>3</td>
<td>.020</td>
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<tr>
<td>Yoga seems to be only for White people</td>
<td>72.98</td>
<td>3</td>
<td>.000</td>
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<tr>
<td>Yoga seems like a religion or cult to me</td>
<td>17.99</td>
<td>3</td>
<td>.000</td>
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<td>Yoga is threatening to my religious beliefs</td>
<td>41.84</td>
<td>3</td>
<td>.000</td>
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<tr>
<td>Yoga seems too sexual for me</td>
<td>45.51</td>
<td>3</td>
<td>.000</td>
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Table 4

Holistic Beliefs Moderating Beliefs about Yoga Regression Analysis

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<th>Beliefs About Yoga</th>
<th>Predictor</th>
<th>$\Delta R^2$</th>
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</thead>
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<tr>
<td>Step 1</td>
<td>CMBQ</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>CMBQ</td>
<td>.39**</td>
<td></td>
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<tr>
<td>Step 2</td>
<td>CMBQ</td>
<td>.01*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CMBQ</td>
<td>.39**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Non-Latino/a White vs. Latino/a</td>
<td>-2.98*</td>
<td></td>
</tr>
<tr>
<td>Step 3</td>
<td>CMBQ</td>
<td>.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CMBQ</td>
<td>.40**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Non-Latino/a White vs. Latino/a</td>
<td>-3.05*</td>
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</tr>
<tr>
<td></td>
<td>CMBQ X racial &amp; ethnic identity</td>
<td>-.13</td>
<td></td>
</tr>
<tr>
<td>Total $R^2$</td>
<td></td>
<td>.20</td>
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</tr>
<tr>
<td>$N$</td>
<td></td>
<td>392</td>
<td></td>
</tr>
</tbody>
</table>

*p < .05. **p < .001.
Table 5

*Knowledge of Yoga Moderating Beliefs about Yoga Regression Analysis*

<table>
<thead>
<tr>
<th>Predictor</th>
<th>$R^2$</th>
<th>$b$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td>.16**</td>
<td></td>
</tr>
<tr>
<td>Knowledge of yoga</td>
<td></td>
<td>1.80**</td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td>.00</td>
<td></td>
</tr>
<tr>
<td>Knowledge of yoga</td>
<td></td>
<td>1.76**</td>
</tr>
<tr>
<td>Non-Latino/a White vs. Latino/a</td>
<td>-1.92</td>
<td></td>
</tr>
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<td><strong>Step 3</strong></td>
<td>.00</td>
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</tr>
<tr>
<td>Knowledge of yoga</td>
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<td>1.74*</td>
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<tr>
<td>Non-Latino/a White vs. Latino/a</td>
<td>-2.03</td>
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</tr>
<tr>
<td>Knowledge of yoga X racial &amp; ethnic identity</td>
<td>-.21</td>
<td></td>
</tr>
<tr>
<td><strong>Total $R^2$</strong></td>
<td>.16</td>
<td></td>
</tr>
<tr>
<td>$n$</td>
<td>392</td>
<td></td>
</tr>
</tbody>
</table>

*p < .05. **p < .001.*
APPENDICES

Appendix A: Demographic form
Appendix B: Yoga Knowledge Measure
Appendix C: Quantitative Methods Recruitment Flyer
Appendix D: Quantitative Methods Consent Form
Appendix E: Qualitative Methods Interview Auxiliary Questions
Appendix F: Qualitative Methods In-person Recruitment Script
Appendix G: Qualitative Methods Recruitment Flyer
Appendix H: Qualitative Methods Verbal Consent
APPENDIX A

Demographic Form

What is your age? ____

What is your gender?
___ Female
___ Male
___ Transgender
___ Other

Are you Hispanic/Latina/o?
___ Yes
___ No

What is your ethnicity?

____________________

What is your race?
___ White
___ Black
___ Asian
___ American Indian or Alaskan Native
___ Native Hawaiian or other Pacific Islander
___ Bi/multiracial

What is your combined annual household income?

____________________

What is your socioeconomic status?

___ Low
___ Middle
___ Upper middle
___ High

Do you have any disabilities?
___ Yes
___ No

What is your highest level of education completed?

___ Elementary school
___ High school
___ Some college
___ College
___ Master’s degree
___ Doctorate degree

What is your religion?
___ Baptist
___ Pentecostal
___ Methodist
___ Presbyterian
___ Non-denominational Christian
___ Other Christian
___ Catholic
___ Unitarian Universalist
___ Buddhist
___ Hindu
___ Muslim
___ Sikh
___ Indigenous religion
___ Afro Cuban
___ Other religion
___ I am spiritual but not religious
___ Not religious or spiritual

What is your country of origin?

____________________

What is your marital status?
___ Single
___ Married
___ Remarried
___ Divorce
___ Domestic partnership
___ Long-term relationship
Do you currently practice yoga?
___ Yes
___ No

How often do you practice yoga?
___ 1 time per week
___ 2 times per week
___ 3 times per week
___ 4+ times per week
___ 1 time per month
___ 2-3 times per month
___ 1 time every few months
___ Inconsistent practice

How long have you been practicing yoga?
___ 1-3 months
___ 4-8 months
___ 9-12 months
___ 1-2 years
___ 3-4 years
___ 5-6 years
___ 6+ years
APPENDIX B

Quantitative Methods

Knowledge of Yoga Measure

Please select whether the following statements are “true,” “false,” or whether you “don’t know.”

1. The main goal of yoga is to increase physical flexibility.
   True  False  Don’t Know

2. Yoga is an ancient philosophy consisting of various practices including asanas, or body postures.
   True  False  Don’t know

3. It is possible to integrate religions such as Christianity into yoga practice.
   True  False  Don’t know

4. Chanting/singing in Sanskrit is required in yoga classes.
   True  False  Don’t know

5. Pranayama (breathing exercises) is practiced after most yoga classes.
   True  False  Don’t know

6. Yoga classes typically end in sun salutations.
   True  False  Don’t know

7. Most yoga teachers in the United States practice Hinduism.
   True  False  Don’t know

8. The typical yoga mat costs at least $50.
   True  False  Don’t know

9. Research has demonstrated that yoga can be helpful in treating depression and anxiety.
   True  False  Don’t know

10. Yoga is mostly helpful for younger people so people who start yoga in middle age typically do not benefit much from this practice.
    True  False  Don’t know
Yoga experience? No yoga experience? We are recruiting individuals with and without yoga experience for a study focused on factors that foster and hinder yoga practice. Participation includes completing a 5-15 online survey. No yoga practice is involved in this study.

To participate in the study you must:
- Be 18 years old or older
- Be currently residing in the U.S.
- Be able to read in English

You will be compensated with a $1.00 Amazon gift card or $1.00 for your participation. Please go to the following link to participate:

[LINK]

For further information email d.marques@umiami.edu or call 754.900.1082 for further information.
APPENDIX D

Quantitative Methods

Consent Form

University of Miami

CONSENT TO PARTICIPATE IN A RESEARCH STUDY

TITLE OF THE STUDY: Exploring Barriers, Beliefs, Knowledge, Experiences and Emotions Related to Yoga Practice Amongst a Racially and Ethnically Diverse Sample

NAME OF PRINCIPAL RESPONSIBLE INVESTIGATOR: Lydia P. Buki, Ph.D. & Scotney Evans, Ph.D.

NAME OF PRINCIPAL INVESTIGATOR: Denise S. Marques, M.A.

DEPARTMENT: Department of Educational and Psychological Studies

FOR QUESTIONS/PROBLEMS CONTACT: Denise S. Marques at d.marques@umiami.edu (754) 900-1082, Dr. Lydia P. Buki at l.buki@miami.edu (305) 284-2230, or Dr. Scotney Evans at s.evans4@miami.edu (305) 284-3033.

The following information describes the research study in which you are being asked to take part. Please read the information carefully. At the end, you will be asked to agree.

PURPOSE OF STUDY: The purpose of this study is to explore factors that foster and hinder yoga practice among adults within the United States.

PROCEDURES: You will be directed to an online survey hosted by Qualtrics and linked to Amazon Mechanical Turk. The survey is focused on beliefs about yoga and is estimated to take 5-15 minutes to complete. All of your responses will be anonymous.

RISKS AND/OR DISCOMFORTS: Risks in this study are considered minimal. You may refuse to answer a question, or stop being in the study at any time without penalty.

BENEFITS: After the completing the survey, you will be given a completion code to enter into Amazon Mechanical Turk to receive a $1.00 Amazon gift card or $1.00. Your email address will not be linked to your survey to protect your privacy.

CONFIDENTIALITY: All information collected from the survey will not be identified by name. Instead, it will be linked to a participation number. All data will be stored on an encrypted, secure password-protected computer. Only people who are directly involved with the project will have access to the data. When the project is finished and results are reported, no individual responses will be identified in any way. All files will be destroyed at least 5 years after study closure. The U.S. Department of Health and Human Services (DHHS) may request to review and obtain copies of your records. Your records may also

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be reviewed for audit purposes by authorized University or other agents who will be bound by the same provisions of confidentiality.

**RIGHT TO DECLINE OR WITHDRAW:** Your participation in this study is voluntary. You are free to say no or leave at any time during the study.

**CONTACT INFORMATION:** If you have any questions concerning the purpose, procedures, or outcome of this project, please contact Denise Marques (d.marques@umiami.edu) at 7(54) 900-1082. You may also contact Dr. Lydia P. Buki (l.buki@miami.edu) at (305) 284-2230 or Dr. Scotney Evans (s.enavs4@miami.edu) at (305) 284-3003. If you have questions about your rights as a research subject you may contact Human Subjects Research Office at the University of Miami, at (305) 243-3195.

**PARTICIPANT AGREEMENT:** I have read the information in this consent form and agree to participate in this study. I am entitled to a copy of this form after it has been signed.
APPENDIX E

Qualitative Methods

Interview Auxiliary Questions

1. How did you learn about yoga?
2. Tell me about the images associated with yoga that you have seen.
3. Why do/don’t you practice yoga?
   3a. What facilitates your yoga practice?
4. What would you do if you had questions about yoga?
5. Has a medical professional ever recommended you to practice yoga? If so, in what context?
6. How familiar are you with the benefits/risks of yoga?
7. What kinds of people practice yoga?
8. What would make/makes a yoga class feel comfortable?
9. What is the best part about yoga?
10. What is the worst part about yoga?
Hi, my name is Denise Marques and I am a doctoral candidate in Counseling Psychology at the University of Miami. I am recruiting both individuals with and without yoga experience to participate in individual interviews focused on yoga. Through my study, I hope to develop a better understanding of factors that promote and hinder yoga practice among adults in the U.S. Interviews will last approximately one hour and there will be no yoga practice involved in the interview.

Your participation in this study is voluntary. If you are 18 or older, currently residing the U.S., and have the ability to speak and read English, you may qualify to participate in this project.

I appreciate your help in conducting this study. People who participate will be awarded a $15 Amazon gift card and a discount pass to a local yoga studio as compensation for their participation.

The first step is to complete our screening. If you are interested in learning more about this study, please speak to me today. Thank you very much for your time.
Yoga experience? No yoga experience? We are recruiting individuals with and without yoga experience for a study focused on factors that foster and hinder yoga practice. If you are 18 years old or older, currently residing in the U.S., and able to read and speak English, you may be eligible to participate. The first step is to participate in 5-15 online surveys. No yoga practice is involved in this study. You may be contacted following the screening to participate in an individual interview lasting approximately one hour.

Those who are selected to participate in the in-person interview will be compensated with a $15.00 Amazon gift card and a discount pass to a local yoga studio for your participation.

Please go to the following link to participate in the online screening.

For further information email d.marques@umiami.edu or call 754.900.1082 for further information.
Hi, my name is Denise Marques, and I am conducting a study called Exploring Barriers, Beliefs, Knowledge, Experiences and Emotions Related to Yoga Practice Amongst a Racially and Ethnically Diverse Sample with Dr. Lydia P. Buki and Dr. Scotney Evans at the University of Miami. As you know, I recruited you from the survey you previously completed on Qualtrics.

PURPOSE OF STUDY: I hope to develop a better understanding of factors that promote and hinder yoga practice among adults in the U.S.

PROCEDURES: I will be asking you a series of questions about your perceptions and experiences of yoga, if relevant. This interview will be audio recorded for research purposes. I will also take notes during the interview, which will not include any identifying information. The interview will last about one hour.

RISKS: Risks in this study are considered minimal. You may refuse to answer a question, or stop being in the study at any time without penalty or loss of benefits.

BENEFITS: You will be awarded a $15 Amazon gift card and a discount pass to a local yoga studio for your participation.

CONFIDENTIALITY: You will not be asked to provide your name during the interview. The audio recording of the interview will be stored on an encrypted, secure password-protected computer. Only people who are directly involved with the project will have access to the data. When the project is finished and results are reported, no individual responses will be identified in any way. All files will be destroyed at least 3 years after study closure.
**WITHDRAW**: Your participation is voluntary, and you have the right to stop at any time without penalty or loss of benefit.

**CONTACT INFORMATION**: If you have any questions or concerns about the research, please feel free to contact Denise Marques (d.marques@umiami.edu) at (754) 900-1082, Dr. Lydia P. Buki (l.buki@miami.edu) at (305) 284-2230, or Dr. Scotney Evans (s.evans4@miami.edu) at (305) 284-3003. If you have any questions regarding your rights as a participant, you may contact the Human Subjects Research Office at the University of Miami at (305) 243-3195.

By you participating in the interview, this means that you consent to participate in this research project and be audio recorded. A copy of this consent script may be provided to you for your personal record. Would you like a copy? Do you have any questions?