EXAMINING THE RELATIONSHIP OF NUMBER OF MULTIRACIAL SIBLINGS, SIBLING PHENOTYPE SIMILARITY, AND SIBLING RELATIONSHIP QUALITY WITH MULTIRACIAL IDENTITY DEVELOPMENT

by

Meg Alexandra García

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Approved by:

_____
Dr. Sejal Parikh Foxx

_____
Dr. Claudia Flowers

_____
Dr. Hank Harris

_____
Dr. Clare Merlin-Knoblich

_____
Dr. Kelly Anderson

ABSTRACT

MEG ALEXANDRA GARCIA. Examining the Relationship of Number of Multiracial Siblings, Sibling Phenotype Similarity, and Sibling Relationship Quality with Multiracial Identity Development. (Under the direction of DR. SEJAL PARIKH FOXX)

Although the multiracial population is currently the fastest growing racial group in the United States, little remains known about their identity and mental wellness. The purpose of this study was to investigate factors that progress multiracial identity development. More specifically, this study examined the relationship of number of multiracial siblings, sibling phenotype similarity, and sibling relationship quality with the multiracial identity development of multiracial adults. A total sample of 563 multiracial participants were recruited from across the United States and completed an online survey involving self-report questions. The outcome variable of multiracial identity development was measured using the Multiracial Identity Integration Scale. Number of multiracial siblings was measured by a single item on the demographic questionnaire, sibling phenotype similarity was measured by an 11-item scale that the researcher created, and sibling relationship quality was measured by the Lifespan Sibling Relationship Scale. A multiple linear regression analysis and one-way analysis of variance were utilized by the researcher to examine the relationship of the predictor variables with multiracial identity development. The results indicated that none of the predictor variables were found to significantly influence multiracial identity development. Implications of this study include the need for a noticeable increase in research on this identity, counselor trainings and teachings on this population, and the awareness of negative stereotypes about this population still embedded in mental health research and practice. This study provides a starting place for future studies to build upon when investigating multiracial siblings and factors that influence multiracial identity development.

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DEDICATION

This dissertation is lovingly dedicated to my parents and sister. I am who I am today because of you three. Mom and dad, from an early age, you instilled in me the importance of education and helping others. Even more so, you proved that love knows no bounds and worked to create a multiracial atmosphere at home that became our own subculture. Although it has been hard and isolating at times, you have put our interracial family first and shown my sister and me that we have a place where we belong. To my sister, Leigh, our relationship is the inspiration for this dissertation. I am eternally grateful that you are my sister and that we have always had each other to confide in and process our multiracial identity with. Having you in my life has shown me that my multiracial identity *is* enough and something to be celebrated. Whether we have felt within, between, or outside of our racial groups, we were there together. This dissertation represents my gratitude and love for you, my sister and best friend.

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CHAPTER 1: INTRODUCTION

The multiracial population is currently the fastest growing racial group in the United States (Jones et al., 2021; Mather & Lee, 2020). The term *multiracial* refers to people with biological parents of two or more different racial backgrounds, which includes people who are biracial (Atkin & Yoo, 2019). Researchers projected that this population would, for the first time, be the fastest growing racial group from 2010 to 2020, with a 36% increase (Mather & Lee, 2020). While the multiracial group indeed grew more than any other racial group, it increased significantly more than projected, at 276% (Jones et al., 2021). The multiracial population increased from approximately 2.9% of the United States population in 2010 to 10.2% in 2020 (Jones et al., 2021; Mather & Lee, 2020; Parker et al., 2015). Still, statistics gathered on the multiracial population must be considered with caution due to the U.S. Census Bureau continuing to improve ways in which to accurately measure this population as it was only first measured in 2000 (Jones et al., 2021). Although this population is rapidly growing more than ever before, research on multiracial people remains sparse across all fields (Atkin & Yoo, 2019; Harris, 2016). Specifically, much remains unknown about the multiracial identity and factors that impact multiracial identity development (Atkin & Yoo, 2019).

Initiated by lack of knowledge about this population, researchers and society at large deemed multiracial individuals as psychologically unhealthy for centuries (Atkin & Yoo, 2019). Unfortunately, in alignment with those negative stereotypes, research indicates that multiracial people experience mental health needs unique from the monoracial majority. Alarmingly, some researchers found that the multiracial population experiences lower rates of life satisfaction and higher rates of suicidal contemplation compared to their monoracial counterparts (Franco, 2019; Schlabach, 2013). Multiracial people also experience identity tension, salient interpersonal

differences, a lack of a sense of belonging, and community concerns (Soliz et al., 2017). These mental health and relational issues may be influenced by the discrimination this population encounters. Multiracial people encounter traditional forms of discrimination rooted in racism as well as unique forms of discrimination rooted in monoracism (Johnston & Nadal, 2010; Johnston-Guerrero et al., 2020). Racial discrimination, even in covert forms like microaggressions, significantly positively correlates with poor mental health symptoms, such as depression, negative affect, and suicidal ideation (Marks et al., 2020; Nadal et al., 2014; O'Keefe et al., 2015).

Although the multiracial population experiences notable mental health needs, this population is easily excluded from counselor training programs as well as counseling literature and multiracial clients reported encountering microaggressions from their mental health providers (Atkin & Yoo, 2019; Kawaii-Bogue et al., 2018). Mental health counselors also reported minimal or absence of appropriate training and real-life experiences with the multiracial population (Moss & Davis, 2008). This is exceedingly concerning considering that multiracial adults utilize mental health services at rates higher than other racial groups (Substance Abuse and Mental Health Services Administration [SAMHSA], 2015, 2019). Moreover, little is known about the mental health and relational strengths of the multiracial population because most of the literature maintains negative societal and historical stereotypes about this population with continual deficit foci. Therefore, the current study focused on supportive factors of the multiracial population in an effort to fill this gap in the literature.

Of the minimal literature examining strengths of the multiracial population, Soliz et al. (2017) found that multiracial people display pluralistic worldviews and an appreciation for diversity. In contrast to historical stereotypes, some multiracial people reported a strong sense of

self due to self-reflection in context to the monoracial majority (Soliz et al., 2017). Some multiracial people also reported a sense of pride in their multiracial identity (Salahuddin & O'Brien, 2011). Lastly, researchers found that multiracial people displayed resilience in the face of exclusion, traditional discrimination, and monoracism (Salahuddin & O'Brien, 2011). In regard to more relational strengths and supports, current research essentially neglects such aspects by only investigating challenges like discrimination and familial exclusion.

Another area unique to the multiracial population is multiracial identity development. Notably, some multiracial people do not self-identify as multiracial (Sue & Sue, 2016). Multiracial people can choose to identify as biracial, multiracial, monoracial, and/or all of their racial groups (Choi-Misailidis, 2010; Root, 1990; Sue & Sue, 2016). The multiracial identity is also fluid, meaning one's racial self-identification can change by day or by decade due to external and internal factors (Choi-Misailidis, 2010; Sue & Sue, 2016).

Usually, multiracial people must process through the complexities of multiracial identity development without guidance as they rarely encounter other individuals of their same racial makeup, even among biological family members (Cardwell & Soliz, 2020; Harris, 2016; Nadal et al., 2013). Research indicates that family members play a significant role in racial identity development through interactions such as racial socialization and racial homophily (Allen et al., 2013; Atkin & Yoo, 2019; Csizmadia et al., 2014; Root, 1998; Stone & Doblin-Macnab, 2017; Waring & Bordoloi, 2019). Racial socialization refers to the process in which an individual learns about their racial identity through the teachings and prior experiences of family members (Atkin & Yoo, 2019). Racial homophily refers to the phenomenon in which people desire and seek relationships with individuals of their same racial makeup (Borr, 2019; Thomas, 2019; Yang & Ayers, 2014). These supportive family dynamics typically operate naturally for

monoracial people with their biological family. However, these dynamics become complicated for multiracial people as they often have differing racial makeups than their family (Atkin & Yoo, 2019). Therefore, racial socialization and racial homophily with family often proves inaccurate and ineffective for multiracial people (Atkin & Yoo, 2019; Csizmadia et al., 2014; Nadal et al., 2013; Stone & Doblin-Macnab, 2017; Waring & Bordoloi, 2019).

The issue of obtaining true racial socialization and racial homophily with family can negatively impact multiracial identity development (Allen et al., 2013; Atkin & Yoo, 2019; Jackson, 2010; Nadal et al., 2013). In fact, 39% of multiracial people report they do not feel proud of their multiracial identity (Parker et al., 2015). Moreover, 21% feel pressured to identify as monoracial in order to feel a sense of belonging and security (Parker et al., 2015). Whereas monoracial people have numerous family members with whom they can find true racial socialization and racial homophily, thereby supporting their racial identity development, multiracial people only have their full biological siblings. Furthermore, 81% of multiracial people report feeling a common bond with other multiracial people, validating the significant support multiracial siblings provide each other (Cardwell & Soliz, 2020; Parker et al., 2015).

Although research indicates that multiracial people have less sources of support for their racial identity development, particularly in regard to family, research about multiracial identity and the population, in general, remains minimal (Atkin & Yoo, 2019; Evans & Ramsay, 2015; Harris, 2016). Because full biological siblings have been identified as supports for multiracial identity development (Cardwell & Soliz, 2020), this study further examined specific ways in which they provide support. This study particularly focused on how having multiracial siblings, similarity between sibling phenotypes, and strong quality sibling relationships might progress multiracial identity development. Based on previous literature, racial identity development is

positively correlated with having more siblings, relationships with others who share your phenotypes, and close sibling relationships (Atkin & Yoo, 2019; Borr, 2019; Cardwell & Soliz, 2020). Therefore, the researcher hypothesized that more multiracial siblings, sibling phenotype similarity, and strong quality sibling relationships would show significant positive correlations with multiracial identity development. The researcher also hypothesized that participants with multiracial siblings would have significantly higher scores of multiracial identity development than those with no multiracial siblings.

Theoretical Framework

In order to understand multiracial people and their identity, the present study was guided by Critical Multiracial Theory (MultiCrit; Harris, 2016). Harris (2016) developed this theoretical framework from the foundation of Critical Race Theory. Although Critical Race Theory helps researchers comprehensively understand monoracial people of color (Howard & Navarro, 2016), Harris (2016) explained that multiracial people cannot be accurately understood through Critical Race Theory because they exist beyond a monoracial paradigm. Harris (2016) emphasized how the multiracial population encounters experiences unique from the monoracial majority and, thus, requires a unique theoretical framework through which to be viewed.

Harris (2016) described the challenges multiracial people encounter in a society structured by monoracial ideologies, some of them being exclusion, discrimination, and erasure. Harris (2016) also reiterated the negative focus that society and most literature place on the multiracial population while simultaneously muting multiracial voices. For this reason, Harris (2016) emphasized the importance of highlighting multiracial voices as well as holistically and contextually investigating this population in order to also reveal strengths and supports. One of these unrevealed supports may be relationships with other multiracial people. As MultiCrit

explains, the experiences multiracial people encounter can only be encountered by other multiracial people. This notion then suggests multiracial people can offer each other support with levels of understanding and relatability that monoracial people simply cannot. The present study utilized this information and incorporated MultiCrit into the variables, research design, and study purpose in order to understand and represent the multiracial population more accurately. Specifically, the present study focused on supportive factors for this population through relationships with other multiracial people, namely, siblings. Furthermore, in an effort to center multiracial voices on their own experiences, only multiracial people were included as participants in this study.

Variables of Interest

In order to fill a gap in current literature, the present study focused on multiracial identity development as an outcome variable. Previous literature continuously indicates that family members significantly influence multiracial identity development, but mostly focuses on parents, grandparents, harmful interactions, and negative correlations. The present study filled these other gaps in the literature by investigating sibling influences and supportive factors. The predictor variables in this study included number of multiracial siblings, sibling phenotype similarity, and sibling relationship quality. Based on related previous literature, each of these variables influences racial identity development, but they had not yet been examined for multiracial siblings and multiracial identity development.

Multiracial Identity Development

Multiracial people experience racial identity development differently than the monoracial majority (Choi-Misailidis, 2010; Poston, 1990; Sue & Sue, 2016). A prominent aspect is that multiracial people self-identify in various ways. Notably, previous literature expresses

uncertainty about which racial self-identification is healthiest for multiracial people. Some models of biracial identity development suggest the goal of an identity in which one integrates their racial backgrounds (Kich, 1992; Poston, 1990). Cheng and Lee (2009) explained that this integration is reached when multiracial people perceive less distance and conflict among their racial backgrounds. However, the models fail to specify if an integrated identity means self-identifying as multi/biracial. Moreover, researchers appear to avoid asserting which self-identification is healthiest, particularly considering that multiracial identity is fluid (Choi-Misailidis, 2010; Poston, 1990; Sue & Sue, 2016). Fluidity, in this context, means that how one chooses to racially self-identify changes due to their environment, phenotype, clothing, others' perceptions, and more (Choi-Misailidis, 2010). So, multiracial individuals' self-identifications cannot be deemed as healthy or unhealthy because they may change at any given time. Furthermore, no empirical research exists indicating which self-identification is healthiest for multiracial people (Choi-Misailidis, 2010). Because of the minimal research and complexity of the multiracial identity, researchers assert the possibility that more than one healthy identity exists for multiracial people (Choi-Misailidis, 2010; Root, 1990; Sue & Sue, 2016). Choi-Misailidis (2010), in the Multiracial-Heritage Awareness and Personal Affiliation Theory, explained that healthy multiracial identity development is actually determined by the congruence between internal identity and external self-identification, which accounts for fluidity. In other words, a healthy multiracial identity does not necessarily mean self-identifying as multiracial but, rather, feeling secure and congruent in one's racial makeup regardless of how they choose to identify (Choi-Misailidis, 2010; Sue & Sue, 2016).

Previous research indicates a few key factors that influence long-term self-identification and multiracial identity development. Perhaps the most frequently discussed factor is societal

attitudes and beliefs about the multiracial population. Negative societal attitudes and treatment toward multiracial people, such as discrimination, exclusion, exoticization, and erasure, negatively impact multiracial identity development (Choi-Misailidis, 2010; Evans & Ramsay, 2015; Harris, 2016; Nadal et al., 2013; Poston, 1990). Poston (1990) identified important influences of multiracial identity development as status factors (e.g., neighborhood and racial identities of friends), social support factors (e.g., family structure, acceptance from family, diversity of peers, and parental style), and personal factors (e.g., phenotype, preferred languages, and individual personalities). Similarly, gender is a notable personal factor that impacts multiracial identity development as women are more likely to identify as multi/biracial and report feeling closer to their racial background than men (Charmaraman & Grossman, 2010; Choi-Misailidis, 2010; Davenport, 2016). Multiracial identity development can also be impacted by one's access to and knowledge of their different racial backgrounds (Choi-Misailidis, 2010; Sue & Sue, 2016). For example, a multiracial person who only interacts with family and friends of one of their races might identify monoracially as that race or feel confusion about their other races (Sue & Sue, 2016).

Another unique aspect of multiracial identity development is that multiracial people often move through the process without others who have experienced it guiding them (Atkin & Yoo, 2019). For monoracial people, key family members, such as parents and grandparents, serve as racial identity guides (Atkin & Yoo, 2019). Research shows that family proves most essential to racial identity development by providing advice, relatability, and racial socialization (Atkin & Yoo, 2019; Csizmadia et al., 2014; Snyder, 2012; Stone & Doblin-Macnab, 2017). In racial socialization, family members teach each other about their racial background, model behaviors, explain experiences of that racial group, and provide a sense of belonging and security (Atkin &

Yoo, 2019; Csizmadia et al., 2014; Snyder, 2012; Stone & Doblin-Macnab, 2017). Contrarily, multiracial people usually have different racial makeups than their relatives. They also might not have personal relationships with other multiracial people due to the small population size. Thus, multiracial people have less options for whom to seek accurate and complete guidance from.

Still, previous research indicates that multiracial people's relationships with family members critically impact multiracial identity development, with racial socialization, acceptance, and inclusion as imperative elements (Atkin & Yoo, 2019; Cardwell & Soliz, 2020; Chancler et al., 2017; Nadal et al., 2013; Poston, 1990). However, the research investigating this factor mostly focuses on how challenges in familial relationships harm multiracial identity development (Franco & Carter, 2019; Franco et al., 2020; Jackson et al., 2020; Nadal et al., 2013). A major gap in the literature is investigating how family members positively impact multiracial identity development. Moreover, research indicates the strong influence of family on multiracial identity development, yet consistently only discusses parents or grandparents and fails to examine sibling influences (Chancler et al., 2017; Franco & Carter, 2019; Franco et al., 2020; Jackson et al., 2020). As full biological multiracial siblings are often the only family members who share each other's racial makeup, it is surprising that only three previous research studies examine them (Cardwell & Soliz, 2020; Root, 1998; Song, 2010). Another prevalent gap in the literature is examining phenotypes. Although some research discusses how phenotypes and family resemblance impact multiracial identity development, none actually measure them (Allen et al., 2013; Villegas-Gold & Tran, 2018; Waring & Bordoloi, 2019).

Other possible variables that have not been thoroughly investigated but may impact multiracial identity development include region, age, education level, name, racial combination, family structure (e.g., number of siblings and parents' marital status), birth order, and the quality

of family relationships (Cardwell & Soliz, 2020; Choi-Misailidis, 2010; Poston, 1990). The present study aimed to fill a few gaps in the literature and address other possible variables. The present study filled a major gap in the literature by investigating how siblings influence multiracial identity development. Within this topic, more narrow gaps were addressed, such as family structure (by means of number of siblings), family resemblance (by means of sibling phenotype similarity), and family relationship quality (in this case, sibling relationships).

Number of Multiracial Siblings

The first people to teach a child about their race are family members (Atkin & Yoo, 2019). With racial socialization, the more sources of socialization, the better. For monoracial people, their main guides in racial identity development are their parents and grandparents (Atkin & Yoo, 2019). Siblings and extended family members then follow, indicating how monoracial identity development can be thoroughly guided by many sources (Atkin & Yoo, 2019; Padilla et al., 2021). Conversely, for multiracial people, full biological siblings are usually the only relatives with the same exact racial makeup as them. Therefore, they are the only people who can provide each other complete racial guidance, belonging, and security (Atkin & Yoo, 2019; Csizmadia et al., 2014; Snyder, 2012; Stone & Doblin-Macnab, 2017). Because multiracial people likely lack numbers in extended family members of their same racial makeup, number of siblings was investigated here. The more full biological siblings a multiracial person has, the more sources of racial socialization and identity development support they have (Atkin & Yoo, 2019; Padilla et al., 2021). A multiracial person who does not have full biological siblings, or any other family members with their exact racial makeup, will likely experience only inaccurate racial socialization and must progress through multiracial identity development without proper guidance (Atkin & Yoo, 2019).

Research indicates that people desire relationships with others of their same racial background through the phenomenon of racial homophily (Borr, 2019; Mackinnon et al., 2011; Thomas, 2019; Yang & Ayers, 2014). Racial homophily provides connection and security, similar to racial socialization, that supports racial identity development (Borr, 2019; Mackinnon et al., 2011; Thomas, 2019; Yang & Ayers, 2014). The more sources of racial homophily or representation one experiences, the more their racial identity develops (Borr, 2019; Mackinnon et al., 2011; Thomas, 2019; Yang & Ayers, 2014). Racial homophily can involve both phenotypes and the knowledge of shared racial makeups (Feliciano, 2016; Mackinnon et al., 2011). Once again, full biological siblings are the most likely people with whom multiracial people can encounter complete racial homophily, including phenotype similarity and shared racial makeup. The more full biological siblings a multiracial person has, the more sources of racial homophily, phenotype similarity, and thus racial identity development support they likely have. A multiracial person who does not have full biological siblings must search for racial homophily and phenotype similarity with other family members and peers who likely have different racial makeups from them.

Full biological siblings can provide racial socialization and racial homophily more fully than other relatives or peers, thereby supporting multiracial identity development. Research shows that siblings do in fact support multiracial identity development (Cardwell & Soliz, 2020; Song, 2010). However, no previous research measures the number of siblings nor compares multiracial participants who have full biological siblings with those who have none. The present study investigated the possibility that the more full biological multiracial siblings one has, the more their multiracial identity development progresses.

Sibling Phenotype Similarity

Racial homophily guides people's preferences when seeking interpersonal relationships at any age (Borr, 2019; Mackinnon et al., 2011; Thomas, 2019; Yang & Ayers, 2014). People often determine racial backgrounds by phenotypes, meaning that phenotype similarities are important aspects of racial homophily (Feliciano, 2016). Although healthy relationships depend on more than racial and phenotype similarities, racial homophily proves beneficial to racial identity development (Borr, 2019; Mackinnon et al., 2011; Thomas, 2019; Yang & Ayers, 2014). Phenotype similarities, particularly, provide connection and confidence in one's racial identity (Allen et al., 2013; Feliciano, 2016; Song, 2010; Waring & Bordoloi, 2019). Whereas monoracial people can find phenotype similarity with many family members, friends, and even strangers, the multiracial population is much smaller. Consequently, multiracial people struggle more to find phenotype similarity with others because they have rarer blends of genetic features (Villegas-Gold & Tran, 2018). Full biological multiracial siblings likely have the most phenotype similarities with each other because of their shared genetic makeup (Villegas-Gold & Tran, 2018).

Previous research indicates that phenotype is a significant factor that impacts multiracial identity development (Choi-Misailidis, 2010). For society at large, phenotype similarities and differences indicate racial belonging or exclusion (Allen et al., 2013; Feliciano, 2016). The racial ambiguity and phenotype dissimilarity multiracial people often display increases microaggressions, such as exoticization and stigmatization, which harm multiracial identity development (Hordge-Freeman, 2013; Tran et al., 2016; Villegas-Gold & Tran, 2018; Waring & Bordoloi, 2019). Other researchers also found that multiracial people seek familial resemblance to increase a sense of belonging and security in their racial identity (Allen et al., 2013; Waring &

Bordoloi, 2019). Most of the existing literature discusses phenotype dissimilarities only and, furthermore, no studies examine multiracial people's phenotype similarities with family members and the resulting impacts. Phenotype similarity may show the opposite outcome of previous research on phenotype dissimilarity by increasing multiracial identity development.

Sibling phenotype similarity was a focus in this study because of the gap in literature investigating multiracial siblings, the gap in investigating familial phenotype similarity, and the fact that full biological siblings share each other's genetic makeup. Therefore, full biological multiracial siblings are more likely to resemble each other's phenotype combination and racial ambiguity than family members who are monoracial or of a different racial makeup. The present study examined the possibility that the more phenotype similarities one shares with others, specifically siblings, the more their multiracial identity development progresses (Allen et al., 2013; Borr, 2019; Song, 2010; Waring & Bordoloi, 2019).

Sibling Relationship Quality

Research indicates that family members significantly impact multiracial identity development (Allen et al., 2013; Atkin & Yoo, 2019; Csizmadia et al., 2014; Root, 1998; Stone & Doblin-Macnab, 2017). Moreover, Cardwell and Soliz (2020) found that full biological multiracial siblings, in particular, provide valuable support and connection. Multiracial siblings bond over shared experiences, converse about their multiracial identity, and identify with each other, all of which support their multiracial identity development (Cardwell & Soliz, 2020). However, Cardwell and Soliz (2020) explained that the quality of sibling relationships likely impacts the extent of these interactions and, thereby, the progression of multiracial identity development.

Moreover, research on monoracial siblings indicates sibling relationship quality positively correlates with racial identity development (Davies, 2015; Francka et al., 2019; Jones et al., 2018). Specifically, Jones et al. (2018) found that stronger quality sibling relationships allowed for more conversations about racial identity, racial exploration, and security in one's racial identity. Notably, these outcomes also relate to siblings providing more egalitarian relationships in which bonding and horizontal conversations can take place (Davies, 2015; Jones et al., 2018; Padilla et al., 2021). Other researchers hypothesized that these outcomes may also prove true for multiracial identity development (Cardwell & Soliz, 2020; Choi-Misailidis, 2010; Poston, 1990).

Current multiracial literature certainly shows that aspects of low-quality family relationships, such as microaggressions and exclusion, negatively correlate with multiracial identity development (Franco & Carter, 2019; Franco et al., 2020; Jackson et al., 2020; Nadal et al., 2013), but the opposite had not yet been researched. Furthermore, studies investigating the impact of the quality of relationships on multiracial identity development only involves parents and grandparents. This predictor variable focused on the quality of full biological multiracial sibling relationships in order to fill a gap in the literature and draw on the egalitarian relationship. The present study investigated the assumption that relationship quality alters the extent to which multiracial siblings support multiracial identity development, with stronger quality sibling relationships further progressing multiracial identity development (Cardwell & Soliz, 2020).

Need for the Study

Research on multiracial identity development and the multiracial population, in general, remains sparse across all fields (Atkin & Yoo, 2019; Harris, 2016). Moreover, most of the

existing literature maintains a deficit focus and is qualitative (Evans & Ramsay, 2015; Harris, 2016; Nadal et al., 2013). The present quantitative study, however, examined supportive factors for multiracial people. Also, research specific to ways in which family members influence multiracial identity development focuses on parents and grandparents (Atkin & Yoo, 2019; Chancler et al., 2017; Durrant & LeBlanc Gillum, 2018; Jackson et al., 2020; Stone & Doblin-Macnab, 2017). Notably, only three research articles within the past 24 years explored multiracial siblings and their multiracial identity (Cardwell & Soliz, 2020; Root, 1998; Song, 2010). Furthermore, two of those articles mostly compared siblings rather than investigating interactions (Root, 1998; Song, 2010). No existing literature, prior to this study, quantitatively examined ways in which the number of multiracial siblings, multiracial sibling phenotypes, and the quality of multiracial sibling relationships impact multiracial identity development.

The present study's findings may provide counselors in all settings and counselor educators insight into multiracial sibling relationships and factors that support multiracial identity to hopefully improve clinical practice and better serve multiracial people. The study's findings may guide counselors during intake assessments with multiracial clients as a reminder to gather information on their family structure and any siblings. The study results may even lead to the creation of specific intake assessments for multiracial clients that clearly assesses sibling relationships. Counseling professionals might consider family sessions with multiracial siblings or even utilize a more family-oriented focus with multiracial clients. Counselors and school counselors may also be better equipped to inform parents about factors influencing their multiracial children's racial identity. Parents might find it helpful to understand how their multiracial children's phenotypes and relationships impact each other's multiracial identity development. If multiracial child clients do not have siblings, counselors may encourage parents

to help their children connect with other multiracial peers their age to provide horizontal levels of multiracial support. This study's findings also propel research on this population in more specific directions, such as examining support from siblings who are not full biological, differences among racial combinations, and influences of siblings' gender identities. The findings provide more research knowledge on this population to the counseling field that can be discussed at counseling conferences and included in counselor training programs. At the policy level, suggestions were made for grants to fund this related research and training on the multiracial population as well as recruitment and support of multiracial faculty and students in counseling programs.

Purpose of the Study

The purpose of this study was to investigate the extent to which number of multiracial siblings, sibling phenotype similarity, and sibling relationship quality relate to the multiracial identity development of multiracial adults.

Research Questions

The following research questions guided the study:

1. How do number of multiracial siblings, sibling phenotype similarity, and sibling relationship quality relate to the multiracial identity development of multiracial adults?
    a. Does sibling relationship quality serve as a mediator variable between sibling phenotype similarity and multiracial identity development?
2. What is the difference in multiracial identity development between multiracial adults who have multiracial siblings and those who have none?

Assumptions

The factors the researcher assumed to be true for the study were:

- The sample was representative of the population.
- Participants were able to read and write in English.
- Participants completed all surveys and scales voluntarily.
- Participants answered all surveys and scales honestly.

Delimitations

The factors the researcher could control were:

- Participants were multiracial individuals who were 18 years of age or over.
- Multiracial individuals were defined as people with biological parents of two or more different racial backgrounds who may or may not self-identify as multiracial.
- Convenience and snowball sampling were used to recruit participants.
- Data were collected through online self-report surveys and scales.

Limitations

The factors the researcher could not control were:

- The online recruitment methods excluded individuals who do not frequent those specific websites, organizations, or online groups.
- Social desirability bias was a limitation in which participants possibly responded to survey questions in ways they believed others might view as favorable (Gittelman et al., 2015).
- Because the research design was correlational, no causal inferences were made.

Threats to Internal Validity

In quantitative research, internal validity refers to how much the changes in the dependent variable can be attributed to the independent variable(s), rather than extraneous variables (Mertens, 2019). Threats to the internal validity of this study included social

desirability bias and instrumentation. The researcher only used instruments appropriately evaluated in previous studies and/or deemed as reliable and valid. In order to address the social desirability bias threat, the researcher assured participants of their anonymity in the study. Participants were possibly more likely to then provide accurate and honest answers in the surveys and scales.

Threats to External Validity

In quantitative research, external validity refers to the extent to which the study results can be generalized to the population (Mertens, 2019). Although the researcher utilized convenience and snowball sampling methods, any multiracial adult across the United States was eligible to participate in the study. Therefore, the researcher expected the study results to be generalizable to the population of multiracial individuals who are 18 years of age or over.

Operational Definitions

The operational definitions of the study's significant terms and variables were as follows:

Multiracial Adults

Multiracial adults were defined as individuals, 18 years of age or over, who have biological parents of two or more different racial backgrounds (Atkin & Yoo, 2019). Participants self-reported that they are multiracial during the informed consent process as this was an inclusion criterion. Furthermore, participants self-reported their racial makeup in free response spaces on the demographic questionnaire.

Multiracial Identity Development

For the purpose of this study, multiracial identity development was defined as the process in which one experiences integration, pride, and resolve with their racial makeup (Cheng & Lee, 2009; Choi-Misailidis, 2010; Poston, 1990). Multiracial identity development was measured by

participants' self-reported total scores on the Multiracial Identity Integration Scale (MIIS; Cheng & Lee, 2009). Scale items were structured on a 5-point Likert scale that ranged from 1 (*completely disagree*) to 5 (*completely agree*) (Cheng & Lee, 2009).

Number of Multiracial Siblings

For the purpose of this study, number of multiracial siblings referred to the number of full biological siblings a participant has. This specification was due to the study's focus on siblings with the same racial combination and genetic makeup, which may impact their experiences, phenotypes, and relationships. Participants self-reported one number from a drop-down option list on the demographic questionnaire in order to indicate how many full biological siblings they have. The number of other siblings that participants have (i.e., adoptive, half, foster, and step) was also collected for future research but not investigated in the present study.

Sibling Phenotype Similarity

Phenotypes are physical features often indicating one's racial background (Feliciano, 2016). Therefore, sibling phenotype similarity referred to participants' physical features that appear similar to their full biological siblings'. In order to measure this variable, the researcher created the Sibling Phenotype Similarity Measure (SPSM) due to no existing related measures. Using the SPSM, participants self-reported how many of their full biological siblings have physical features similar to them. The measure included regularly observed phenotypes (Feliciano, 2016), including hair color, hair texture, skin tone, body type, nose shape, lip shape, eye color, eye shape, face shape, height, and one optional free response space for participants to enter another relevant physical feature (e.g., freckles, body hair, etc.). Participants reported one drop-down option number for each SPSM phenotype item to indicate how many of their full

biological siblings share that specific physical feature with them. Participants' total scores indicated sibling phenotype similarity.

Sibling Relationship Quality

For the purpose of this study, sibling relationship quality referred to the extent to which participants' relationships with their full biological siblings are communicative, supportive, and close (Cardwell & Soliz, 2020; Riggio, 2000b). Sibling relationship quality was measured by participants' total scores on the Lifespan Sibling Relationship Scale (LSRS; Riggio, 2000a). The LSRS measured three areas, including affect toward siblings, positivity of behavior toward siblings, and beliefs about siblings and sibling relationships (Riggio, 2000b). The LSRS was intended to be used with adult participants only. Participants responded to each of the scale items using a 5-point Likert scale that ranged from 1 (*strongly disagree*) to 5 (*strongly agree*) (Riggio, 2000a). Participants completed the LSRS for only their full biological sibling relationships. If participants have more than one full biological sibling, they completed the LSRS with all of their full biological sibling relationships in mind, providing a total score that reflected the relationships on average.

Chapter Summary

The multiracial population experiences unique challenges in racial identity development (Choi-Misailidis, 2010; Poston, 1990). In monoracial identity development, racial socialization and racial homophily correlate with positive racial identity development outcomes. However, racial socialization and racial homophily prove less accurate, complete, and available for multiracial people (Atkin & Yoo, 2019; Csizmadia et al., 2014; Nadal et al., 2013; Waring & Bordoloi, 2019). Because the multiracial population remains a small portion of the United States, they encounter less people of their same racial makeup, even within family (Mather & Lee,

2020; Parker et al., 2015). This creates concern about the process of multiracial identity development. However, full biological siblings might be the answer to this issue, particularly if they have strong quality relationships (Cardwell & Soliz, 2020). These siblings likely provide the most accurate and complete racial socialization, connectivity, modeling, and racial homophily to each other, thereby supporting multiracial identity development (Atkin & Yoo, 2019; Waring & Bordoloi, 2019).

Although the multiracial population continues to rapidly increase as the fastest growing racial group in the country, research about them and their identity is severely lacking (Atkin & Yoo, 2019; Evans & Ramsay, 2015; Jones et al., 2021; Mather & Lee, 2020). Only three studies prior to this one have examined multiracial siblings in relation to racial identity, with only one investigating multiracial siblings' influence on multiracial identity development (Cardwell & Soliz, 2020; Root, 1998; Song, 2010). The present study examined how number of multiracial siblings, sibling phenotype similarity, and sibling relationship quality relate to multiracial identity development. This study aimed to address the significant gap in literature as well as inform counselor educators, counselors, and school counselors of supportive factors for the multiracial identity in order to improve training and clinical practice with this population.

Organization of the Study

This study includes five chapters. The first chapter involved a discussion about the problem the study addressed, the need for the study, and the significance of the study. Chapter one also included an introduction of the dependent and independent variables of interest, including multiracial identity development, number of multiracial siblings, sibling phenotype similarity, and sibling relationship quality. Lastly, chapter one included the study's research questions, assumptions, delimitations, limitations, and important operational definitions. The

second chapter of this study is a review of the literature. Current evidenced-based literature related to the dependent and independent variables of this study are examined for significant findings and existing gaps. The third chapter outlines the methodology that was used in the study. Participants, procedures, data collection, instrumentation, research design, and data analysis are addressed in this chapter. The fourth chapter reports the study findings through presentation of the data screening, descriptive statistics, instrument reliability, bivariate correlations, and analysis results. The fifth and final chapter concludes with discussion of the study findings, contributions, limitations, implications, and recommendations for future research.

CHAPTER 2: REVIEW OF THE LITERATURE

The purpose of this study was to investigate factors influencing the multiracial identity development of multiracial adults. The following research questions guided the study: (a) How do number of multiracial siblings, sibling phenotype similarity, and sibling relationship quality relate to the multiracial identity development of multiracial adults?; (a.1.) Does sibling relationship quality serve as a mediator variable between sibling phenotype similarity and multiracial identity development?; and (b) What is the difference in multiracial identity development between multiracial adults who have multiracial siblings and those who have none? The following chapter will review relevant existing literature in order to further establish the need for the study. The literature review will begin with a discussion of the theoretical framework, Critical Multiracial Theory (MultiCrit), and population of interest, multiracial adults. The next section will provide an overview of the dependent variable, multiracial identity development. Next will be a literature review of each independent variable, number of multiracial siblings, sibling phenotype similarity, and sibling relationship quality, in relation to multiracial identity development. The chapter will conclude with a summary, highlighting important conclusions of the literature review.

Theoretical Framework

This study was guided by MultiCrit, developed by Harris (2016) from the foundation of Critical Race Theory. While researching the multiracial population, Harris (2016) recognized the need for a theoretical framework specific to multiracial people, explaining that they exist beyond a monoracial paradigm of race. MultiCrit provides a more accurate and comprehensive view through which to exclusively understand multiracial people and their experiences. Still, Harris (2016) maintained a few tenets of Critical Race Theory in MultiCrit.

The eight guiding tenets of MultiCrit include challenge to ahistoricism, racism/monoracism/colorism, interest convergence, challenge to dominant ideology, a monoracial paradigm of race, experiential knowledge, differential micro-racialization, and intersections of multiple racial identities (Atkin & Yoo, 2019; Harris, 2016). The tenet related to challenging ahistoricism derives from Critical Race Theory and refers to analyzing issues of race in historical and contemporary contexts (Harris, 2016). Interest convergence is another tenet from Critical Race Theory that refers to acknowledging and supporting multiracial people only when the dominant culture benefits (Harris, 2016). Experiential knowledge centers the voices of multiracial people in order to use their own experiences to create meaning (Harris, 2016). Challenge to dominant ideology refers to challenging traditional stereotypes or the status quo (Harris, 2016). Racism/monoracism/colorism is the first tenet that differs from Critical Race Theory. This tenet stresses that multiracial people can experience racism, monoracism, and colorism simultaneously (Atkin & Yoo, 2019; Harris, 2016). A monoracial paradigm of race refers to society conceptualizing race as rigid categories, inadvertently ignoring the multiracial identity (Harris, 2016). The tenet of differential micro-racialization refers to multiracial people being racialized in different ways to support the dominant culture (Harris, 2016). The last tenet, intersection of multiple racial identities, explains that the intersection of multiracial people's various cultural identities is compounded by the intersection of more than one racial group (Harris, 2016).

Together, the MultiCrit tenets create a multiracial lens beyond a monoracial paradigm of race. MultiCrit establishes a multiracial paradigm in which to better understand and holistically view multiracial people. The current study incorporated MultiCrit by contextualizing multiracial people to the monoracial society in which they live. Additionally, in the multiracial sibling

relationship, the multiracial experience prevails as the norm because the siblings share the same multiracial background. The current study focused within the multiracial sibling relationship in an effort to center multiracial voices, the multiracial experience, and operate from a multiracial paradigm of race (Harris, 2016).

Multiracial Adults

The multiracial population continues to increase at rates faster than ever before (Jones et al., 2021; Mather & Lee, 2020; Parker et al., 2015). In fact, the multiracial population was the fastest growing racial group in the United States between 2010 and 2020, with a 276% increase (Jones et al., 2021; Mather & Lee, 2020). Over the last decade, the population grew from approximately 2.9% to 10.2% of the country (Jones et al., 2021). Although the population remains only 10.2%, this percentage will likely continue to increase at exponential rates as it has for the past few decades (Jones et al., 2021; Mather & Lee, 2020; Parker et al., 2015). For example, one in 100 children born in the 1970s were multiracial (Schlabach, 2013). In recent years, one in 19 children born were multiracial (Schlabach, 2013). Not only is the multiracial population significantly increasing but also becoming more widespread across the United States (U.S. Census Bureau, 2021). The most recent data from the U.S. Census Bureau (2021) shows that the multiracial population increased in almost every county between 2010 and 2020. As researchers project continued growth from this population, considerably more accurate and objective research is needed (Jones et al., 2021; Mather & Lee, 2020; Parker et al., 2015).

Historical Discrimination in the United States

Historically, research on the multiracial population maintains a deficit focus driven by negative stereotypes (Atkin & Yoo, 2019; Harris, 2016; Schlabach, 2013). Although multiracial people have existed in the United States for hundreds of years, researchers continuously

outcasted this population throughout time and, in the mental and physical health fields, often pathologized multiracial people as physically unhealthy, mentally ill, and psychologically confused (Atkin & Yoo, 2019; Schlabach, 2013). Some of this prejudice can be linked to the eugenics movement in which scientists asserted racial mixing as unnatural and repugnant (Atkin & Yoo, 2019; Carter, 2013). This created the idea of the "marginal man," someone psychologically damaged and confused due to their multiracial makeup (Stonequist, 1937). The U.S. Census Bureau only recently, in 2000, allowed respondents to select more than one racial group categorization, officially recognizing the multiracial population on a research level for one of the first times (Atkin & Yoo, 2019; Parker et al., 2015). Still, the historical exclusion and lack of knowledge about the multiracial population in scientific and mental health research clearly impacted societal perspectives.

One of the most well-known monoracist movements in the United States is the enactment of hypodescent. White society publicly utilized the idea of hypodescent, also called "the one drop rule," during slavery in an effort to maintain hierarchical control over the multiracial population (Carter, 2013; Spickard, 2016; Sue & Sue, 2016). Hypodescent proved to be a class-based social system in which biracial Black/White people automatically classified as Black due to having even "one drop" of non-White blood (Carter, 2013; Spickard, 2016; Sue & Sue, 2016). The rule of hypodescent essentially eliminated the multiracial population from societal existence (Carter, 2013). "The one drop rule" still lingers in society today, though not outwardly acceptable, and extends to all other racial combinations (Atkin & Yoo, 2019; Sue & Sue, 2016). Some examples include society rarely classifying multiracial people as monoracially White or the media often ignoring the multiracial population by only identifying people as monoracial (Atkin & Yoo, 2019). Societal recognition and acceptance of multiracial people only just

improved after the Supreme Court case of *Loving v. Virginia* ended the national ban, also known as anti-miscegenation laws, on interracial marriage in 1967 (Atkin & Yoo, 2019; Carter, 2013).

Discrimination Today

Rather than societal movements or national bans, discrimination toward the multiracial population today often manifests as microaggressions. Microaggressions involve subtle and covert messages of discrimination toward a group of people (Pierce et al., 1978). Although these covert acts of discrimination appear more typical than overt ones today, they still significantly affect mental health. Racial microaggressions positively correlate with depression symptoms, negative affect, suicidal ideation, and racial identity confusion (Marks et al., 2020; Nadal et al., 2014; Nadal et al., 2013; O'Keefe et al., 2015). Notably, the multiracial population encounters racial microaggressions and their negative effects at similar rates as monoracial people of color (Meyers et al., 2020; Nadal et al., 2014; Nadal et al., 2011). However, specific to this population, multiracial people also face monoracism in addition to racism (Harris, 2016; Kawaii-Bogue et al., 2018; Nuttgens, 2010; Poston, 1990). An example of monoracism involves a multiracial microaggression stating that a multiracial Black/Native American/Latinx individual is not Native American "enough." Additionally, unique from the monoracial majority, multiracial people can encounter such microaggressions and other forms of discrimination from their own family members (Johnston & Nadal, 2010; Nadal et al., 2013). Historical monoracism, current racism and monoracism, and possible discrimination from family members compound upon each other to create concern for the mental health and racial identity development of multiracial people (Johnston & Nadal, 2010; Nadal et al., 2013).

Current Research

In alignment with historical stereotypes about multiracial people, research unfortunately shows mental health and identity struggles among this population. However, current research explains such issues as arising more so from external factors, such as discrimination and isolation, whereas historical stereotypes only pointed to internal factors, such as biology and the psyche (Carter, 2013; Stonequist, 1937; Sue & Sue, 2016). Key external stressors, including continuous discrimination and prejudice, can result in multiracial identity confusion, invalidation, conflicting loyalties to family members, and even internal trauma (Sue & Sue, 2016). For example, in a qualitative study of 29 multiracial participants, Soliz et al. (2017) identified specific challenges of this population as communal concerns, salient differences in personal relationships, and identity tension. Franco and Carter (2019) then conducted a quantitative study with 466 multiracial participants and found that discrimination from family members positively correlated with substance use in participants, beyond the outcomes of discrimination from non-family members. Franco and Carter (2019) explained that the anxiety and depression symptoms resulting from discrimination from family acted as moderating variables for substance use. Discrimination from family members also negatively correlates with self-esteem and social connectedness as well as positively correlates with depression, feelings of exclusion, and isolation, all of which amplify for multiracial people who do not have any multiracial family members (Franco et al., 2020; Johnston & Nadal, 2010; Nadal et al., 2013; Nadal et al., 2011; Salahuddin & O'Brien, 2011). These findings may be due to others actively excluding multiracial people or simply the small population size and, thereby, lack of exposure to other multiracial people. Even more concerning, other researchers found that multiracial

people reported decreased life satisfaction and suicidal ideation at significantly higher rates than their monoracial counterparts (Franco, 2019; Schlabach, 2013).

Although previous research extensively indicates prevalent mental health and social challenges among multiracial people, a few researchers investigated strengths of this population. Along with challenges, Soliz et al. (2017) also identified benefits of the multiracial identity that participants reported. The most reported benefit involved experiencing a pluralistic worldview, meaning that a multiracial background provided participants appreciation and enhanced understanding of others (Soliz et al., 2017). Other reported strengths included a strong sense of self and pragmatic benefits, such as education or scholarship opportunities (Soliz et al., 2017). Similarly, in a quantitative study with 317 multiracial participants, Salahuddin and O'Brien (2011) found that participants reported a strong appreciation for human differences. Sue and Sue (2016) went as far as to assert that multiracial people display enhanced cultural competence. In contrast to other, more deficit focused, research, Salahuddin and O'Brien (2011) also found that multiracial people reported moderate levels of multiracial pride. The researchers argued how this finding alludes to the resiliency of the multiracial population, particularly in the face of centuries-long discrimination and exclusion (Salahuddin & O'Brien, 2011). Multiracial people likely possess other notable strengths; however, most existing literature on this population largely remains negatively focused. Therefore, the present study challenged this dominant monoracial ideology by examining supportive factors of the multiracial population and identity. In order to do so, the researcher only investigated factors of support with the potential to positively correlate with multiracial identity development outcomes.

Racial Identity Development

Racial identity development can be described simply as one's pride in their racial background (Sue & Sue, 2016). Through the process of racial identity development, individuals gain understanding of their own beliefs and attitudes about self, others in their racial group, and people outside of their racial group (Poston, 1990). Phinney (1996) then explained how racial identity exploration and development allow individuals to develop secure identities, accept other racial groups, and create a positive sense of self in relation to their racial group. While everyone experiences this process in distinctive ways, theorists asserted common stages for each racial group that typically occur (Poston, 1990). The overarching goal is to reach a secure racial identity, which positively impacts areas of overall health, including psychosocial health, psychological health, physical health, and academic outcomes (Cross et al., 2018; Erikson, 1959; Rivas-Drake et al., 2014; Williams et al., 2012). Many factors can support the development of racial identity, and research shows family as one of the most significant (Atkin & Yoo, 2019; Brittian et al., 2012; Dawson & Quiros, 2014; Nelson et al., 2018; Padilla et al., 2021). The following sections will further address racial identity development models, ways in which racial identity development impacts overall health, family influence on racial identity development, as well as how and why multiracial identity development must be researched in distinctive ways.

Racial Identity Development Models

Although theorists created specific racial identity development models for each racial group, many of the models for monoracial people of color closely align with Cross' model. Cross' (1971) five-stage Nigrescence Model for African American people was revised into the four-stage People of Color Racial Identity Model (Cross, 1991). Stages of this model include pre-encounter, encounter, immersion-emersion, and internalization-commitment (Cross, 1991;

Ponterotto et al., 2010). These stages outline a process that begins at assimilation with the White majority, fluctuates to anti-White sentiments and cognitive dissonance, and concludes with multicultural values (Cross, 1991; Ponterotto et al., 2010). Conversely, the significant differences of White racial identity development require a separate model. Helms' (1995) empirically supported White Racial Identity Model includes the statuses of contact, disintegration, reintegration, pseudo-independence, immersion/emersion, and autonomy. As White individuals move through this model, gradually becoming racially aware and antiracist, the overall goal is to define one's White identity outside of their racial superiority (Helms, 1995; Ponterotto et al., 2010).

Racial Identity Development and Overall Health

Regardless of one's race or the racial identity model utilized to conceptualize their progression, racial identity development is an essential aspect of human functioning, particularly for people of color (Nelson et al., 2018; Ponterotto et al., 2010). As a pioneer of psychosocial health, Erik Erikson (1959) introduced the crucial human development stage of identity versus role confusion, in which people strive for an understanding of self in relation to the rest of the world. Racial identity is then engrained in one's sense of self. Because Erikson's (1959) psychosocial stages build upon each other, people must gain a strong identity in order to fully function and successfully meet the following life stages, otherwise, disfunction occurs.

While racial identity development is linked to healthy psychosocial functioning, it is also closely related to psychological functioning. In a longitudinal quantitative study of 148 Latinx participants, Cross et al. (2018) found racial identity as a protective factor against depression symptoms. Specifically, participants' higher scores in positive feelings about their racial group, beliefs about other racial groups viewing theirs positively, and salience or centrality of racial

identity in their overall sense of self negatively correlated with depression symptoms (Cross et al., 2018). Similarly, in a quantitative study with 572 Black participants, Williams et al. (2012) found that a stronger racial identity negatively correlated with anxiety and depression among participants. Williams et al. (2012) continued by explaining that racial identity provides resilience and serves as a protective factor against racial discrimination. Racial identity also supports mental health by providing a sense of belonging, security, self-esteem, and confidence (Brittian et al., 2012; Nelson et al., 2018; Phinney, 1996; Ponterotto et al., 2010). By contrast, a weak racial identity is associated with confusion, identity tension, a lack of a sense of belonging, poor interpersonal relationships, prejudice against other racial groups, and even prejudice against one's own racial group (Cross, 1991; Phinney, 1996; Ponterotto et al., 2010).

Racial Identity Development and Family

Racial identity development is influenced by many relationships, including those with peers, community, and society at large (Phinney, 1996). However, the relationships that most strikingly influence racial identity development are those with family. Through a phenomenon known as racial socialization, family members teach each other about their racial group and experiences (Atkin & Yoo, 2019). Specifically, relayed messages discuss racial history, pride, culture, and how to handle discrimination (Dawson & Quiros, 2014). Through racial socialization, family members act as guides for the other members throughout racial identity development. For example, in a quantitative study with 934 participants of color, Nelson et al. (2018) found that racial socialization from parents positively correlated with racial identity exploration and commitment. These two outcomes then led to positive mental health scores among participants (Nelson et al., 2018). Many other researchers studied this topic and asserted, overall, that racial socialization positively correlates with a strong and stable racial identity

(Brittian et al., 2012; Dawson & Quiros, 2014; Nelson et al., 2018; Padilla et al., 2021). Monoracial people have one racial group that their identity stems from and numerous role models within that group who can provide the guidance, examples, and relatability that come with racial socialization. Conversely, multiracial people factually encounter less opportunities for accurate racial socialization due to their population size (Atkin & Yoo, 2019). As multiracial people's identity stems from two or more racial groups, the majority of existing research on racial socialization, racial identity development, and the overarching monoracial identity development models fail to encompass their experiences (Atkin & Yoo, 2019; Harris, 2016).

Multiracial Identity Development

Similar to monoracial identity development, multiracial identity development is the process in which one experiences integration, pride, and resolve with their racial makeup (Choi-Misailidis, 2010; Poston, 1990). Obviously, though, multiracial identity development is unique in that two or more racial groups are involved as well as the phenomenon of fluidity. Fluidity in relation to multiracial identity refers to the changing of racial self-identification from moment to moment, depending on external factors such as one's environment, clothing, phenotype, societal perceptions, and more (Choi-Misailidis, 2010; Poston, 1990; Root, 1990; Sue & Sue, 2016). Notably, multiracial people can experience racial fluidity throughout their lifetimes (Sue & Sue, 2016). Because the general definition of racial identity development becomes complicated for two or more races and fails to consider fluidity, Choi-Misailidis (2010) also described multiracial identity development as congruence with one's internal sense of racial identity and external self-identification. Although significantly less research exists on multiracial identity development, some researchers developed relevant and differing models for biracial people. The models outline stages of biracial identity development and other frameworks outline the various ways in

which multiracial people may choose to racially self-identify. An important debate among multiracial researchers revolves around the idea of whether or not one of the racial self-identifications proves healthiest. While some researchers believe this to be true, interestingly, no existing research empirically proves one racial self-identification as healthier than the others (Choi-Misailidis, 2010).

Biracial Identity Development Models

Poston (1990) was one such researcher who alluded to a healthiest route for multiracial identity. Poston's (1990) Biracial Identity Development Model is perhaps one of the most well-known among multiracial literature. Although specific to biracial individuals, Poston's (1990) five identified stages are the most appropriate among biracial models to extend to multiracial people. These stages include personal identity, choice of group categorization, enmeshment/denial, appreciation, and integration. In the personal identity stage, individuals typically hold a sense of self that is independent from their racial background (Poston, 1990). During the second stage of choice of group categorization, people feel pressured to choose a racial identity, usually a monoracial one (Poston, 1990). Feelings of guilt and confusion then arise in the enmeshment/denial stage due to believing they neglected or rejected their other racial group(s) (Poston, 1990). In the appreciation stage, individuals begin to feel grateful for their racial makeups and learn more about their racial groups (Poston, 1990). Finally, Poston (1990) asserted that an integrated identity is reached when individuals value and recognize all of their racial groups. Cheng and Lee (2009) also explained that a multiracial person who does not reach integration in the multiracial identity development process might experience more distance and conflict among their racial groups. In this case, distance refers to believing one's racial groups remain exceedingly separate and cannot be blended together (Cheng & Lee, 2009). Similarly,

conflict refers to believing one's racial groups elicit high friction with their norms and values contradicting one another (Cheng & Lee, 2009). While Poston's (1990) model indicates an integrated identity as the final stage of development, the researcher neglected to clearly specify a racial self-identification that aligns with this healthiest destination of development. Other creators of biracial identity development models also described an integration of racial groups as the last stage or goal for multiracial people, but, like Poston (1990), they all neglected to assert a coinciding racial self-identification (Kerwin & Ponterotto, 1995; Kich, 1992; Rockquemore & Laszloffy, 2005).

Multiracial Self-Identifications

Unique from the monoracial majority, multiracial people may racially self-identify in various ways. Root (1990) most appropriately outlined the four common ways in which multiracial people self-identify in the Ecological Framework for Understanding Multiracial Identity Development. In alignment with most other multiracial identity development models and frameworks (Choi-Misailidis, 2010; Rockquemore & Brunsma, 2002; Rockquemore & Laszloffy, 2005), Root (1990) emphasized fluidity by establishing environmental contexts as the foundation of self-identification. That being said, the first self-identification Root (1990) described is assuming the racial identity assigned by society. This can involve identifying as monoracial or multiracial and may be fluid as societal environments change (Sue & Sue, 2016). Another potential identity is identifying with both or all of one's racial groups, which also accounts for frequent fluidity (Root, 1990; Sue & Sue, 2016). Multiracial people can also identify as monoracial, which differs from the first option as individuals claim the identity themselves and less fluidity occurs (Root, 1990; Sue & Sue, 2016). The last option Root (1990) outlined is identifying as multi/biracial, in which individuals feel belonging and connection with

other multiracial people as they form their own racial group. Previous researchers' assertions about the goal for integration align most appropriately with this final identity as it involves a fusion of one's racial groups in which distance and conflict among the groups minimally manifest. However, Root (1990) groundbreakingly asserted that all four racial self-identifications can prove healthy for multiracial people. Root's (1990) framework stands out from other models and frameworks not only for asserting that more than one healthy self-identification exists but also for expanding beyond the biracial population to include multiracial people and appropriately accounting for the societal context, fluidity, and various levels of intersectionality that influence multiracial identity.

Choi-Misailidis (2010) is another researcher who explained how one self-identification cannot be deemed as healthiest for this population. Instead, Choi-Misailidis (2010) asserted that a healthy multiracial identity involves more than just self-identification. Due to fluidity, a healthy multiracial identity is one in which congruence remains between external racial self-identification or affiliation and internal identity (Choi-Misailidis, 2010). In other words, a healthy multiracial identity involves feelings of security, contentment, and congruence in one's racial makeup, regardless of how they choose to identify (Sue & Sue, 2016). When this overall congruence fails to occur, one's multiracial identity is less developed and may cause issues in adjustment, interpersonal relationships, and mental health (Choi-Misailidis, 2010).

The various models and frameworks of multi/biracial identity development clearly involve disputes about what constitutes a mentally healthy multiracial identity. Most models stated that an integration of one's racial groups indicates a healthy identity (Kerwin & Ponterotto, 1995; Kich, 1992; Poston, 1990; Rockquemore & Laszloffy, 2005). Although these researchers neglected to explicitly name which self-identification they deemed as healthiest, they

appear to align with the option Root (1990) listed as identifying as multi/biracial. This identity option involves a fusion of racial groups in which integration is more likely to occur, along with less conflict and distance among one's racial groups (Choi-Misailidis, 2010; Rockquemore & Brunsma, 2002; Root, 1990). Conversely, other researchers asserted that several identities may be healthy for multiracial people (Choi-Misailidis, 2010; Root, 1990). These researchers suggested this possibility largely because of the fluidity of the multiracial identity, meaning that multiracial people can self-identify as any of the identity options at any given time based on influential contextual factors (Choi-Misailidis, 2010; Root, 1990). Cardwell et al. (2020) also asserted that racial identity development is not an achieved destination for multiracial people but rather an everchanging experience. Lastly, and most importantly, no empirical research shows evidence of one racial self-identification proving healthier than the others (Choi-Misailidis, 2010).

Factors Influencing Multiracial Identity Development

A significant gap in literature exists for investigating factors that influence multiracial identity development. Still, Root's (1990) ecological framework identified several possible factors at the macro- and micro-levels. Some of the macro-level factors included regional and generational history of race and ethnic relations, gender, sexual orientation, and socioeconomic status. Some of the micro-level factors included family socialization, cultural values, coping skills, social skills, and phenotype (Root, 1990). Unfortunately, little to no empirical research provides evidence for these factors' impacts. However, the minimal empirical research provides evidence that women self-identify as multi/biracial more often than men due to multiracial women experiencing exoticization more often and society's continual use of "the one drop rule" for men of color (Carter, 2013; Davenport, 2016; Spickard, 2016; Sue & Sue, 2016). Studies also

show that relational dynamics with family members and siblings correlate with multiracial identity development (Cardwell & Soliz, 2020; Song, 2010; Stone & Doblin-Macnab, 2017). Lastly, empirical research shows that monoracism and multiracial microaggressions, particularly enacted by family members, negatively correlate with multiracial identity development and, instead, increase racial invalidation, identity confusion or tension, communal concerns, and mental health challenges (Franco & O'Brien, 2018; Johnston & Nadal, 2010; Nadal et al., 2013; Soliz et al., 2017).

Multiracial Identity Development and Mental Health

The health and progression of multiracial identity development can be determined by mental health symptoms. Racial identity development impacts the mental health of multiracial people similarly to how it impacts that of monoracial people. Thus, a more progressed multiracial identity negatively correlates with anxiety and depression while positively correlating with confidence, self-esteem, a sense of belonging, and security (Brittian et al., 2012; Cross et al., 2018; Nelson et al., 2018; Phinney, 1996; Ponterotto et al., 2010; Williams et al., 2012). As the racial identity process proves inherently social, multiracial identity development can also influence interpersonal relationships, communal satisfaction, and confusion about one's role within their racial groups (Cardwell & Soliz, 2020; Cross, 1991; Phinney, 1996; Ponterotto et al., 2010; Soliz et al., 2017; Sue & Sue, 2016). However, most research exclusively examining the social and mental health outcomes of racial identity development focus on the monoracial majority. Research is needed that specifically focuses on the health outcomes of multiracial identity development.

Because racial identity development directly relates to mental health outcomes, it is important for professionals in the counseling field to be aware of this research. Moreover, the

uniqueness of multiracial identity development only increases the importance of counseling professionals familiarizing themselves with the process and outcomes. Evans and Ramsay's (2015) content analysis of articles from the top 10 counseling journals over a 22-year span (from 1991 to 2013) resulted in only 10 articles about the multiracial population. Additionally, counselors reported minimal or absence of appropriate training and real-life experiences with the multiracial population, impeding on their ability to provide applicable and quality services to this population (Moss & Davis, 2008). Even more concerning, multiracial clients reported experiencing microaggressions enacted by their mental health providers (Atkin & Yoo, 2019; Kawaii-Bogue et al., 2018). These reports prove critical, especially considering recent data shows that multiracial adults utilize mental health services at rates higher than other racial groups (SAMHSA, 2015, 2019). SAMHSA (2015) found that multiracial people serve as 17.1% of the national population of adults who utilize mental health services. This percentage is then followed by White adults at 16.6%, Native American adults at 15.6%, Black adults at 8.6%, Latinx adults at 7.3%, and Asian adults at 4.9% (SAMHSA, 2015). SAMHSA (2019) then found that 43% of multiracial adults with any mental disorder utilize mental health services, which is only second to the 50.3% of White adults with any mental disorder. Much more research is needed on multiracial identity development in order to educate counseling professionals more thoroughly on this population's experiences, internal processes, psychosocial needs, mental health protective and risk factors, and mental health needs. With more extensive empirical literature, mental health providers will then be better able to provide accurate, unbiased, and quality services to this active client population.

Gaps in the Literature

Of the minimal literature on multiracial identity development, numerous gaps exist. As previously mentioned, most racial identity development literature focuses on the monoracial majority alone. Additionally, most of the current research on multiracial identity development exclusively focuses on the biracial population (Kerwin & Ponterotto, 1995; Kich, 1992; Poston, 1990; Rockquemore & Brunsma, 2002; Rockquemore & Laszloffy, 2005). Only two existing frameworks intentionally accounted for multiracial people (Choi-Misailidis, 2010; Root, 1990). In actuality, this focus on biracial people alone proves true for all research on the multiracial population. One of the most significant gaps in the literature is the failure to investigate what factors specifically influence multiracial identity development. Although a few researchers hypothesized some influencing factors (Cardwell et al., 2020; Choi-Misailidis, 2010; Kich, 1992; Poston, 1990; Rockquemore & Laszloffy, 2005; Root, 1990), few empirical studies exist that actively measure them.

The limited amount of empirical research that measures influencing factors of multiracial identity development mostly points to the importance of familial relationships (Cardwell & Soliz, 2020; Chancler et al., 2017; Durrant & LeBlanc Gillum, 2018; Jackson et al., 2020; Root, 1998; Song, 2010; Stone & Dolbin-MacNab, 2017). As the monoracial population easily accesses numerous peers and family members for support throughout their racial identity development, the multiracial population encounters less guides who share their racial makeup. With this lack of racial similarity and empirical evidence showing family as an important factor of racial identity development, it is imperative that researchers extensively investigate familial influences on multiracial identity development. However, existing related research only focuses on family members, such as parents or grandparents, with racial makeups different from the

multiracial participants rather than focusing on those with the same racial makeup, such as siblings (Chancler et al., 2017; Durrant & LeBlanc Gillum, 2018; Jackson et al., 2020; Stone & Dolbin-MacNab, 2017). In other words, research exists examining how monoracial family members influence multiracial identity development, but only one study exists that examines how multiracial family members influence it (Cardwell & Soliz, 2020). The current study filled several of these gaps in the literature by including both biracial and multiracial participants, empirically investigating factors that impact multiracial identity development outcomes, and examining the influence of multiracial family members on multiracial identity development. To do so, the predictor variables of this study included number of multiracial siblings, sibling phenotype similarity, and sibling relationship quality.

Number of Multiracial Siblings

Research shows that siblings play an important role in overall health, well-being, and identity formation (Davies, 2015; Fry et al., 2021; Hamwey et al., 2019; Stocker et al., 2020). Goetting (1986) explained that a few critical elements siblings provide each other include comfort, affection, companionship, friendship, emotional support, and caretaking. Siblings establish these elements in childhood and adolescence and then carry them into adulthood (Goetting, 1986). Researchers found that, in early development, individuals who do not have siblings exhibit lower self-concept, self-control, and social skills compared to individuals who have at least one sibling (Downey & Condron, 2004; Yucel, 2014). Also in childhood, if guardians display inability to carry out caretaking responsibilities, both emotional and physical, siblings often unite to provide such needed responsibilities to each other (Goetting, 1986). In adulthood, researchers found that siblings significantly increase their social and communication skills with each other (Merry et al., 2020). Consequently, each additional sibling provides a 3-

10% decrease in the likelihood of divorce (Bobbitt-Zeher et al., 2016). Therefore, this supportive factor is not found for individuals without siblings. Another study showed that, in older adulthood specifically, sibling warmth and care negatively correlated with loneliness (Stocker et al., 2020). Majority of the literature on siblings displays progressively more positive outcomes as the number of siblings increases (Bobbitt-Zeher et al., 2016; Davies, 2015; Fry et al., 2021; Hamwey et al., 2019; Merry et al., 2020; Stocker et al., 2020). Only two studies found possible moderately negative outcomes in a few areas for people with more than four siblings, although these outcomes are unrelated to the current study's population and outcome variable (Yucel, 2013, 2014). Overall, having siblings and the number of siblings positively influence interpersonal skills and identity formation.

Number of Siblings and Racial Identity Development

Research shows that family members, particularly biological family members, play an important role in racial identity development (Atkin & Yoo, 2019; Dawson & Quiros, 2014; Nadal et al., 2013; Padilla et al., 2021; Snyder, 2012). Family members serve as the first resources from which people learn about their racial backgrounds (Atkin & Yoo, 2019). Through a process known as racial socialization, family members teach, guide, and encourage one another's racial identity development (Atkin & Yoo, 2019). They also provide a general sense of connection and mutuality that progresses racial identity development (Atkin & Yoo, 2019; Dawson & Quiros, 2014; Snyder, 2012). Research indicates that the more family members involved in one's racial identity development, the further it progresses (Atkin & Yoo, 2019; Chancler et al., 2017). More family resources through whom to observe modeling as well as process and learn about one's race allow for further developed racial identity (Atkin & Yoo, 2019; Chancler et al., 2017). Specific to siblings, research indicates that they provide

incomparable horizontal levels of mutuality, racial socialization, and relatability (Davies, 2015; Jones et al., 2018; Padilla et al., 2021).

Davies (2015) conducted a qualitative narrative study with 41 participants and found that people understand their identities in relation to their siblings. Davies (2015) found that participants tended to discuss their identities in comparison to their siblings. This embedded way of understanding oneself originates in childhood due to the horizontal nature of sibling relationships and societal tendencies to compare siblings. The researcher concluded that the comparative nature of sibling relationships is a foundational factor in identity development and, thereby, racial identity development (Davies, 2015). In these egalitarian relationships, siblings support each other's racial identity development by providing exclusive relatability and connection that other family members cannot (Jones et al., 2018; Padilla et al., 2021). The horizontal nature of sibling relationships allows siblings to relate on the intersectionalities of their racial background, upbringing, family structure, and generational traits. Naturally, the more siblings one has, the more horizontal and egalitarian relationships through which to experience racial mutuality, connection, and guidance. The question then remains about how the progression of racial identity development for people who grew up without siblings is affected by the absence of these relationships and sources of racial understanding. Ultimately, siblings can help each other reach healthier and more integrated racial identities (Davies, 2015; Jones et al., 2018; Padilla et al., 2021).

Number of Siblings and Multiracial People

Full biological siblings remain just as important, if not more, to multiracial people. Due to having racial makeups different than their monoracial family members and the small size of the population, full biological multiracial siblings are often the only people who share one

another's racial makeup (Atkin & Yoo, 2019; Cardwell & Soliz, 2020; Song, 2010). Research on microaggressions enacted by family members toward multiracial relatives alludes to the importance of multiracial siblings serving as protective factors against the possible negative outcomes (Franco et al., 2020; Johnston & Nadal, 2010; Nadal et al., 2013; Nadal et al., 2011; Salahuddin & O'Brien, 2011). This causes concern for multiracial people who do not have siblings and ways in which their mental health, self-esteem, and self-concept may be affected by this isolation (Franco et al., 2020; Johnston & Nadal, 2010; Nadal et al., 2013; Nadal et al., 2011; Salahuddin & O'Brien, 2011). Unfortunately, only three studies exist focusing on multiracial people and siblings (Cardwell & Soliz, 2020; Root, 1998; Song, 2010). Even among these three studies, no existing literature investigates the number of siblings among the multiracial population.

Number of Multiracial Siblings and Multiracial Identity Development

Researchers found that having full biological siblings supports and progresses multiracial identity development (Cardwell & Soliz, 2020; Song, 2010). Cardwell and Soliz (2020) conducted a grounded theory study with 21 multiracial participants to investigate whether or not multiracial siblings impact multiracial identity development. The researchers found that they supported multiracial identity development through bonding over their unique shared identity, conversing about their racial identity, and reflecting upon each other's racial self-identifications (Cardwell & Soliz, 2020). Song (2010) also used qualitative methods to interview 51 multiracial sibling sets and found that multiracial siblings invested themselves in each other's multiracial identity development. Similar to Cardwell and Soliz (2020), Song (2010) found that multiracial siblings reflected upon each other's differing self-identifications and fluidity as a way to assess and encourage their siblings' and their own progress through multiracial identity development.

These study findings align with Davies' (2015) research indicating that people process their identities in relation and comparison to their siblings.

Research also shows that the isolation and exclusion multiracial people feel as a result of being underrepresented in most settings, including with family, negatively impacts multiracial identity development (Franco et al., 2020; Johnston & Nadal, 2010; Nadal et al., 2013; Nadal et al., 2011). Therefore, being surrounded by fellow multiracial people, in this case, siblings, will likely show the opposite effect. Moreover, racial socialization for multiracial people normally proves inaccurate and ineffective due to the different racial makeups between them and their family (Atkin & Yoo, 2019; Brittian et al., 2012; Chancler et al., 2017; Christophe et al., 2021; Csizmadia et al., 2014; Durrant & LeBlanc Gillum, 2018; Jackson et al., 2020; Stone & Doblin-Macnab, 2017). Consequently, the most accurate and effective racial socialization, relatability, modeling, and mutuality for multiracial people derives from their full biological siblings (Atkin & Yoo, 2019; Cardwell & Soliz, 2020). Concern then arises for multiracial people who have no full biological siblings from whom to receive these multiracial identity development supports. Although researchers found evidence indicating that multiracial siblings positively influence multiracial identity development, no multiracial research investigates how the number of multiracial siblings impacts this outcome or compares participants with multiracial siblings to those who have none. However, in alignment with monoracial literature, the researcher hypothesized that such results would show that multiracial identity development increases with the number of multiracial siblings, including a significant difference between participants with multiracial siblings and those with none.

Gaps in the Literature

Few research studies investigate how the number of siblings, specifically, impacts racial identity development. Moreover, the existing studies that investigate this topic only focused on participants under the age of 18 (Chancler et al., 2017; Yucel, 2014). Also, minimal literature exists about multiracial siblings and their influence on multiracial identity development. In fact, the article by Cardwell and Soliz (2020) is the only existing study that examines the topic. Song (2010) briefly discussed how multiracial siblings' racial self-identifications influence each other's; however, the researcher neglected to investigate the topic any further. No other existing studies explore ways in which multiracial siblings influence multiracial identity development. Furthermore, no previously existing studies investigate the number of multiracial siblings or compare multiracial people who have full biological siblings with those who have none.

Summary

Siblings positively influence overall health, well-being, and racial identity development (Atkin & Yoo, 2019; Davies, 2015; Fry et al., 2021; Hamwey et al., 2019; Stocker et al., 2020). With racial identity development, full biological siblings provide levels of mutuality, connection, and racial socialization that other family members cannot (Atkin & Yoo, 2019; Dawson & Quiros, 2014; Jones et al., 2018; Padilla et al., 2021; Snyder, 2012). The more siblings one has, the more accurate resources they have to support their racial identity development (Atkin & Yoo, 2019). For multiracial people, full biological siblings prove even more important as they are often the only relatives who share each other's racial makeup (Atkin & Yoo, 2019; Cardwell & Soliz, 2020; Song, 2010). Research shows that multiracial siblings support multiracial identity development through bonding, conversing, and modeling different racial self-identifications (Cardwell & Soliz, 2020; Song, 2010). Existing research on ways in which multiracial siblings

influence multiracial identity development remains significantly minimal with only one study. Furthermore, no studies examine the number of multiracial siblings, compare multiracial people who have full biological multiracial siblings with those who have none, or ways in which these numbers influence multiracial identity development.

Sibling Phenotype Similarity

Research indicates that, throughout the lifespan, people desire and seek relationships with others of their same racial makeup through a phenomenon known as racial homophily (Borr, 2019; Mackinnon et al., 2011; Thomas, 2019; Yang & Ayers, 2014). Racial homophily is typically determined by phenotype, which refers to various physical features associated with race (Feliciano, 2016; Mackinnon et al., 2011). Feliciano (2016) identified common phenotypes used for racial categorization as skin tone, nose shape, lip shape, hair texture, and more. Mackinnon et al. (2011) conducted a quantitative study with 356 participants and found that participants chose to sit and interact with people of their own race based on some of these listed phenotypes. Even within families, researchers found that family members sometimes display favoritism for relatives who share more phenotypes with them (Hordge-Freeman, 2013; Lewis, 2011; Nadal et al., 2013; Root, 1998; Waring & Bordoloi, 2019). Racial homophily may stem from the evolutionary history of males utilizing phenotype similarities to verify paternity (Lewis, 2011). This practice then extended beyond paternity to recognize genetic similarity with other relatives, including siblings (Lewis, 2011). Phenotype similarity, both among strangers and family, offers a sense of belonging between people that has existed throughout human history. Specific to siblings, Lewis (2011) conducted a quantitative study and found that sibling phenotype similarity provides additional benefits, such as emotional closeness, connection, and even altruism. Lewis

(2011) further explained these results of phenotype similarity among siblings as increasing intimate conversations, interpersonal support, and a sense of identity.

Family and Sibling Phenotype Similarity and Racial Identity Development

Racial homophily and phenotype similarity provide connection and a sense of belonging that progress racial identity development (Allen et al., 2013; Borr, 2019; Jackson, 2010; Mackinnon et al., 2011; Song, 2010; Thomas, 2019; Waring & Bordoloi, 2019; Yang & Ayers, 2014). When experiencing racial homophily and phenotype similarity in interpersonal relationships, people construct a racial network and group membership through which they may further formulate their racial identity (Borr, 2019; Thomas, 2019). Racial homophily and phenotype similarity exist most often amongst biological family members. Researchers found that seeking phenotype similarity with family members and siblings occurs as a natural instinct for humans throughout the lifespan (Allen et al., 2013; Lewis, 2011; Thomas, 2019; Waring & Bordoloi, 2019). Furthermore, Davies' (2015) study on sibling interactions displayed the common tendency for people to discuss their identities, including their racial identity, in relation to phenotype similarities and dissimilarities with their siblings. Interestingly, many of Davies' (2015) participants compared their phenotypes with their siblings without the researcher prompting them to do so. This evolutionary instinct to seek phenotype similarity with family members provides racial connection and belonging, which facilitate racial identity development (Allen et al., 2013; Lewis, 2011; Waring & Bordoloi, 2019).

Family and Sibling Phenotype Similarity and Multiracial People

Phenotype similarity and racial homophily prove less accurate and common for multiracial people due to the small population size and having racial makeups different from their relatives (Villegas-Gold & Tran, 2018; Waring & Bordoloi, 2019). Because of their racial

makeups, multiracial people often display phenotype ambiguity, in which their physical features challenge rigid monoracial categories (Jackson, 2010; Villegas-Gold & Tran, 2018). In a quantitative survey study with 383 multiracial adults, Villegas-Gold and Tran (2018) found that phenotype ambiguity negatively correlated with well-being and self-esteem. Phenotype ambiguity and phenotype differences from family may also lead to discrimination from family members toward multiracial relatives (Hordge-Freeman, 2013; Lewis, 2011; Nadal et al., 2013; Root, 1998; Waring & Bordoloi, 2019). In a qualitative study with 15 families, participants described colorism from family members who favored the multiracial siblings with lighter skin tones (Hordge-Freeman, 2013). Similarly, Root's (1998) qualitative study with 20 biracial sibling pairs also showed evidence of racial homophily within families as phenotype dissimilarities between siblings led to hazing and favoritism from friends and family. Moreover, Nadal et al. (2013) even established favoritism, strictly based on phenotype similarities, as a domain of multiracial microaggressions commonly perpetrated from family members toward multiracial relatives. While these studies mostly found evidence of colorism and family preference or racial homophily for the multiracial siblings with more White physical features, participants also reported encounters in which the opposite occurred. Lastly, Waring and Bordoloi (2019) conducted a qualitative study with 60 biracial Black/White participants in which participants reported feeling distanced from their monoracial family members due to significant phenotype dissimilarities. This relates to the research findings asserting that the desire for close relationships with others who share one's racial phenotypes and background increases in settings where they are an underrepresented group (Borr, 2019). As multiracial people are consistently an underrepresented group, even within family settings, they may turn to full biological siblings for that mutuality. These findings again allude to multiracial people finding the most phenotype

similarity and racial homophily with their full biological siblings. Unfortunately, the majority of literature about multiracial siblings and phenotypes negatively focuses on how dissimilarities separate the siblings, rather than how similarities might connect them.

Sibling Phenotype Similarity and Multiracial Identity Development

Discrimination and favoritism from family members negatively impacts multiracial identity development, leaving multiracial people exoticized and isolated (Jackson, 2010; Nadal et al., 2013; Villegas-Gold & Tran, 2018). These encounters relay exclusionary messages about phenotype dissimilarities, phenotype ambiguity, and the multiracial identity. Research shows that phenotype ambiguity, specifically, increases encounters of microaggressions within and outside of family, harming multiracial identity development (Nadal et al., 2013; Tran et al., 2016). In Waring and Bordoloi's (2019) study, many multiracial participants also reported their first racial memory as people, family or non, pointing out their phenotype ambiguities and dissimilarities from their monoracial family members. Participants described these memories as particularly harmful to their multiracial identity development, such that their familial and racial memberships were questioned from a young age (Waring & Bordoloi, 2019). Usually, the only people who share specific phenotype ambiguities with multiracial people are their full biological siblings (Lewis, 2011; Song, 2010; Waring & Bordoloi, 2019). However, previous research appears to only focus on multiracial siblings' experiences of phenotype dissimilarities with family and each other (Hordge-Freeman, 2013; Nadal et al., 2013; Root, 1998; Waring & Bordoloi, 2019). Constant highlighting of phenotype dissimilarities among multiracial siblings may harm their multiracial identity development as it further isolates them, even from each other (Nadal et al., 2013). Because phenotype ambiguity and phenotype dissimilarity among multiracial siblings negatively influence multiracial identity development, the researcher hypothesized that

phenotype similarity among multiracial siblings would then result in a positive correlation with multiracial identity development.

Gaps in the Literature

Limited research exists investigating sibling phenotypes and ways in which they impact racial identity development. Moreover, many multiracial researchers allude to the importance of multiracial sibling phenotypes but neglect to thoroughly examine them. The only research investigating multiracial sibling phenotypes focuses on dissimilarities and ways in which these cause harmful outcomes (Hordge-Freeman, 2013; Nadal et al., 2013; Root, 1998; Tran et al., 2016; Villegas-Gold & Tran, 2018; Waring & Bordoloi, 2019), once again displaying a negative stereotype and deficit focus in research on the multiracial population. These research studies also fail to directly relate multiracial sibling phenotypes to multiracial identity development. Therefore, no previously existing studies examine phenotype similarities among multiracial siblings and ways in which they influence multiracial identity development.

Summary

Sibling phenotype similarity progresses racial identity development through racial homophily in which connection, mutuality, and a sense of belonging occur (Borr, 2019; Feliciano, 2016; Mackinnon et al., 2011; Thomas, 2019; Yang & Ayers, 2014). For multiracial people, full biological siblings are often the only people who share their phenotypes and phenotype ambiguities (Villegas-Gold & Tran, 2018; Waring & Bordoloi, 2019). Therefore, they are typically the only sources with whom multiracial people experience true racial homophily, phenotypic belonging, and relatability, all of which may progress multiracial identity development, as is true for monoracial identity development. Unfortunately, the only existing research with discussion on multiracial sibling phenotypes neglects to thoroughly investigate the

topic and only involves dissimilarities and damaging outcomes. Prior to this study, no existing literature examines sibling phenotype similarities or ways in which they impact multiracial identity development.

Sibling Relationship Quality

Throughout the lifespan, sibling relationships remain one of the most enduring and constant (Ponti & Smorti, 2019). In a quantitative path analysis, conducted with 253 emerging adults, Ponti and Smorti (2019) found that sibling relationships significantly correlate with life satisfaction. The researchers stated that the actual quality of sibling relationships determines the direction of life satisfaction, in that stronger quality sibling relationships positively correlate with life satisfaction (Ponti & Smorti, 2019). They also suggested that this correlation may be bidirectional (Ponti & Smorti, 2019). More specifically, Szymańska (2021) conducted a similar quantitative study with 276 participants and found that the strong bond, mutuality, intimacy, and engagement aspects of strong quality sibling relationships influenced the positive correlation with life satisfaction. Sibling warmth can also buffer against externalized behavioral problems and internalized emotional problems (Fry et al., 2021). Notably, researchers discovered that sibling relationships appear to improve throughout the lifespan, with the occurrence of more meaningful communication and conversations (Hamwey et al., 2019). Hamwey et al. (2019) conducted a qualitative study with 45 participants and found that participants reported feeling happier with their sibling relationships in adulthood due to better understanding each other. Furthermore, Stocker et al. (2020) found the relationship between sibling relationship quality and well-being as partially mediated by loneliness in older adulthood. Due to the importance of sibling relationships throughout the lifespan, it is important to consider factors of the relationships in both childhood and adulthood when determining the relationship quality (Riggio,

2000b). Factors to consider, from both childhood and adulthood, that describe sibling relationship quality include siblings' emotions, behaviors, and thoughts toward each other (Riggio, 2000b). Other researchers found evidence that phenotype similarity also impacts sibling relationship quality by increasing their bond, altruism, closeness, and communication with each other (Lewis, 2011; Waring & Bordoloi, 2019). These study findings on sibling relationships assert, overall, that sibling relationship quality influences a sense of connection, belonging, and life satisfaction.

Sibling Relationship Quality and Racial Identity Development

Davies' (2015) qualitative study asserted that the various facets of identity, including racial identity, remain embedded in the sibling relationship. Davies (2015) further explained that individuals construct and conceptualize their various sub-identities in relation to their siblings. These assertions result from society's natural tendency to compare siblings to each other, beginning in childhood (Davies, 2015). Other existing research indicates how sibling relationship quality specifically influences racial identity development (Francka et al., 2019; Jones et al., 2018). Francka et al. (2019), with a quantitative study of 101 sibling dyads, found that sibling relationship quality somewhat progressed participants' resolution in their identities related to physical traits. Even more specific, Jones et al. (2018) conducted a quantitative study with 171 Latinx participants and found that sibling relationship quality positively correlated with racial identity development and exploration. As Phinney (1996) explained, racial identity exploration remains an essential element of racial identity development in which people form their independent and individualized sense of self. Jones et al. (2018) hypothesized that these findings resulted from siblings with stronger relationships conversing with each other more frequently about their racial identity. These studies show that the quality of sibling relationships determines

the extent to which the unique horizontal factors of the relationship are utilized to aid racial identity development.

Sibling Relationship Quality and Multiracial People

Minimal research exists on the sibling relationship quality among multiracial people. Cardwell and Soliz (2020) asserted that no existing research shows evidence that multiracial people experience stronger quality sibling relationships than monoracial people. Root (1998) asserted that phenotype dissimilarity separates multiracial siblings, thereby harming their relationship quality. As previously mentioned, Lewis (2011) investigated this relationship in monoracial populations and found evidence that aligns with Root's (1998) stance. Relatedly, some researchers alluded to concern that phenotypic multiracial microaggressions and differing sibling self-identifications might harm the quality of multiracial sibling relationships (Nadal et al., 2013; Root, 1998; Song, 2010). Song (2010) interviewed 51 sibling sets in a phenomenological qualitative study and somewhat discussed the above concerns. Contrarily, Song (2010) found little to no evidence indicating that microaggressions and differing self-identifications significantly harm the quality of multiracial sibling relationships. Song (2010) actually found that differences among multiracial siblings' phenotypes and self-identifications increase conversations about race and multiracial identity development, perhaps strengthening the relationship quality. Due to these differences in findings about how phenotype similarity interacts with the sibling relationship quality of multiracial siblings, more research in this area is needed. Despite Song (2010) being one of the few researchers to study multiracial siblings, the quality of multiracial sibling relationships was minimally addressed in the study and little remains known about it.

Sibling Relationship Quality and Multiracial Identity Development

As previously mentioned, Cardwell and Soliz (2020) found that multiracial siblings influence each other's multiracial identity development. Cardwell and Soliz (2020) hypothesized that, in alignment with monoracial literature (Francka et al., 2019; Jones et al., 2018; Ponti & Smorti, 2019), the quality of sibling relationships ultimately determines the strength and direction of siblings' impacts on multiracial identity development. In other words, Cardwell and Soliz (2020) suggested that stronger sibling relationship quality likely increases their findings of bonding, conversations about racial identity, seeking support from each other, and perhaps more, all of which progress multiracial identity development (Jones et al., 2018). While Cardwell and Soliz (2020) asserted this hypothesis, it had yet to be tested prior to this study.

Gaps in the Literature

Existing literature minimally examines the impact of sibling relationship quality on racial identity development. Moreover, little to no existing literature properly examines sibling relationships, or the quality of those relationships, among multiracial people. Only two research studies address multiracial sibling relationships. Of those studies, only one suggests the possible relationship between sibling relationship quality and multiracial identity development. Consequently, no research exists investigating the ways in which the quality of multiracial sibling relationships impacts multiracial identity development.

Summary

Sibling relationship quality impacts many personal experiences, including life satisfaction, a sense of connection, and racial identity (Davies, 2015; Jones et al., 2018; Ponti & Smorti, 2019; Stocker et al., 2020; Szymańska, 2021). Previous research indicates that sibling relationship quality significantly influences racial identity development (Davies, 2015; Francka

et al., 2019; Jones et al., 2018). Stronger quality sibling relationships typically progress racial identity development due to sharing more conversations about race and feeling a deeper sense of belonging (Francka et al., 2019; Jones et al., 2018). Researchers hypothesized that the same correlation is true for multiracial sibling relationships and multiracial identity development (Cardwell & Soliz, 2020). However, no previously existing studies focus on sibling relationship quality among multiracial people or how it impacts multiracial identity development.

Chapter Summary

Multiracial people experience racial identity development in ways unique from the monoracial majority (Choi-Misailidis, 2010; Poston, 1990). As the multiracial population grows, little remains known about the factors that impact multiracial identity development. Previous literature explains how having siblings, sibling phenotype similarity, and sibling relationship quality may progress racial identity development (Jones et al., 2018; Lewis, 2011; Padilla et al., 2021). Researchers have only recently begun investigating the relationships of these factors with multiracial identity development. Thus far, research indicates that multiracial siblings progress one another's multiracial identity development, though no studies have accounted for number of multiracial siblings or compared multiracial people with full biological siblings to those with none (Cardwell & Soliz, 2020). Researchers also indirectly described sibling phenotype dissimilarity as negatively correlating with multiracial identity development, but none have examined sibling phenotype similarity (Hordge-Freeman, 2013; Nadal et al., 2013; Root, 1998; Waring & Bordoloi, 2019). Lastly, researchers hypothesized that sibling relationship quality positively correlates with multiracial identity development, as is found for monoracial people, but no studies have investigated this hypothesis so far (Cardwell & Soliz, 2020). The current

study built upon these findings from previous literature in order to fill the gaps in research on multiracial identity development and siblings.

CHAPTER 3: METHODOLOGY

The overarching research question in this study investigated factors related to the multiracial identity development of multiracial adults. The following specific research questions guided the study: (a) How do number of multiracial siblings, sibling phenotype similarity, and sibling relationship quality relate to the multiracial identity development of multiracial adults?; (a.1.) Does sibling relationship quality serve as a mediator variable between sibling phenotype similarity and multiracial identity development?; and (b) What is the difference in multiracial identity development between multiracial adults who have multiracial siblings and those who have none? The first research question only involved participants with multiracial siblings, while the second research question compared participants with multiracial siblings to those who have none. The methodology for this study will be described in this chapter. The chapter will explain aspects of the methodology, including participants, data collection procedures, instrumentation, research design, and data analysis.

Participants

Participants in this study included a convenience and snowball sample of multiracial adults living in the United States at the time of the study, recruited via multiple methods described in the following section. Inclusion criteria included: (a) self-identify as multiracial or biracial *and/or* have biological parents of two or more different racial backgrounds; (b) be 18 years of age or over; (c) live in the United States at the time of data collection; and (d) be able to read and write in English. Because multiracial people can experience a fluid racial identity and might not self-identify as multiracial or biracial, it was important to provide the definition of multiracial in the inclusion criteria (Choi-Misailidis, 2010; Poston, 1990; Sue & Sue, 2016). The researcher provided the inclusion criteria at the beginning of the recruitment email in order for

potential participants to verify if they qualified to participate in the study. The researcher aimed to extend an invitation to participate to at least 2,000 multiracial adults. Additionally, a snowball sampling method was used by asking participants to share the survey with other multiracial adults who meet the criteria. According to a G*power analysis, a minimum of 176 respondents was necessary to obtain sufficient power to detect effects ($f^2 = .10$, $\alpha = .05$, power = .95, and number of predictors = 3). A total of 563 participants were included in this study. The participant demographics will be described in the next chapter.

Data Collection Procedures

The researcher obtained approval from the Institutional Review Board (IRB) at the University of North Carolina at Charlotte to conduct survey research with human subjects prior to conducting any recruitment or data collection methods. The researcher first examined the Sibling Phenotype Similarity Measure (SPSM) for reliability (i.e., coefficient alpha) due to the researcher creating this scale for the current study. The researcher did so by conducting a pilot test in which three experts in the fields of counseling and multiracial studies completed the measure. The experts then provided the researcher their data and feedback on the clarity of the measure. The results of this pilot test were not included in the current study and were only used to determine the technical quality of the created scale. After receiving IRB approval and finding the reliability of this measure to be strong, the researcher recruited participants online through social media and email listservs of multiracial and counseling related organizations, such as the Association for Multicultural Counseling and Development, the Multiracial/Multiethnic Counseling Concerns Network, Mixed Race Studies, Multiracial and Multicultural Community Group, and Biracial Family Support Group. The recruitment emails and posts informed potential participants that the online survey was open for eight weeks. The researcher sent out recruitment

emails and posts requesting participation to the recruitment sources twice. In addition to convenience sampling, the researcher utilized snowball sampling in an effort to increase response rates. Thus, participants were asked to forward the online survey to people who possibly met the inclusion criteria. Due to the sampling methods, the response rate of the survey could not be calculated.

Interested participants who determined that they met the inclusion requirements for participation in the study followed the email link to an informed consent form on the Qualtrics website. The informed consent form outlined the study purpose, inclusion criteria, confidentiality statement, and risks and benefits of participating in the study. The informed consent form explained that participation in the study was voluntary and participant responses would remain confidential and anonymous. Anonymity was ensured as no emails or other identifying information associated with participant responses was collected. Participants were also informed that they could retract their consent at any time during the study without explanation or penalty. Participants then electronically indicated, by selecting an agreement box, that they read and understood the informed consent. After indicating consent, participants were directed to the online survey.

All instruments were merged into one online survey using Qualtrics. The online survey included the demographic questionnaire, SPSM, Lifespan Sibling Relationship Scale (LSRS), and Multiracial Identity Integration Scale (MIIS). A skip logic was utilized so that participants who indicated that they have zero full biological siblings on the demographic questionnaire did not receive the subsequent demographic questions about full biological siblings, SPSM, or LSRS. Instead, they only received the MIIS after completing their portion of demographic questionnaire. The instruments included a total of 81 items for participants with full biological

siblings and 18 items for participants with no full biological siblings. The researcher utilized the guiding principles for internet surveys from the Tailored Design Method in an effort to increase the response rate of online participants (Dillman et al., 2009). This involved designing the survey with visuals and question placements that aided participants' responses and understanding (Dillman et al., 2009). The estimated time to complete the online survey was 5 to 10 minutes. The average time of completion was 10 minutes. The researcher did not collect any personally identifying data. Upon closing the survey, the researcher downloaded the data from Qualtrics into a Microsoft Excel spreadsheet and later uploaded it into the Statistical Package for the Social Sciences (SPSS) software. In compliance with university Level two data storage guidelines, the researcher stored the digital data in a Google drive folder of the primary researcher.

Instrumentation

The online survey included four instruments to collect data. The researcher created two of the instruments, while the other two instruments were created and published by other researchers. The researcher contacted the creators of the published instruments in order to gain permission for use.

Demographic Questionnaire

The self-report demographic questionnaire was created by the researcher and included a total of 14 items. The questionnaire consisted of a variety of multiple choice, drop-down option, and free response questions. The questionnaire included questions about participants' age, sexual orientation, gender identity, family structure, age difference from their siblings, place in sibling birth order, region they were raised in, racial background, and how they racially self-identify. The last item on the questionnaire was an optional free response space for participants to input

any comments they wanted to add about their demographics, survey responses, or experiences. The number of multiracial siblings variable was determined by participants' self-reports to the demographic questionnaire item asking how many full biological siblings they have. Participants simply selected a single number from a drop-down option list to indicate the number of multiracial siblings they have. Participants who indicated they have zero full biological siblings only received 10 items as the subsequent four demographic questions focused on full biological siblings. The demographic questionnaire required approximately 1 to 2 minutes to complete.

Sibling Phenotype Similarity Measure

Sibling phenotype similarity was determined with a measure created by the researcher due to no existing instruments measuring or relating to this variable. The SPSM consisted of 11 items about commonly observed racial phenotypes. The items included hair color, hair texture, skin tone, body type, nose shape, lip shape, eye color, eye shape, face shape, height, and an optional free response space for participants to enter any other prominent physical features relevant to them (Feliciano, 2016). For example, an item stated, "Indicate how many of your full biological siblings have the same nose shape as you." The following items simply restated this example with other phenotypes in place of "nose shape." Participants self-reported a single number from the drop-down options for each item to indicate how many of their full biological siblings share those specific physical features with them. The variable of sibling phenotype similarity was determined by participants' total scores on this scale. Higher scores indicated more sibling phenotype similarity, while lower scores indicated sibling phenotype dissimilarity. Because there is no existing published instrument that measures this variable, the researcher examined the reliability using Cronbach's alpha prior to recruitment and data collection. During

the pilot test, the researcher found the reliability of this scale to be strong at .96. The SPSM required approximately 1 to 2 minutes to complete.

Lifespan Sibling Relationship Scale

The Lifespan Sibling Relationship Scale (LSRS) is a 48-item instrument used to measure one's relationship quality with their siblings (Riggio, 2000b). The scale items exist on a 5-point Likert scale (1 = *strongly disagree* to 5 = *strongly agree*). Riggio (2000b) identified six subscales in the LSRS as follows: (a) adult affect; (b) adult behavior; (c) adult cognitions; (d) child affect; (e) child behavior; and (f) child cognitions. Each subscale consists of eight related questions. For example, an item in the adult behavior subscale states, "My siblings talk to me about personal problems" (Riggio, 2000a, p. 2). An item in the child affect subscale states, "I remember feeling very close to my siblings when we were children" (Riggio, 2000a, p. 2). An example item in the child cognitions subscale states, "My siblings and I had a lot in common as children" (Riggio, 2000a, p. 3). Participants self-reported a single number on the Likert scale to indicate how much they agreed or disagreed with each item in relation to their relationships with their full biological siblings as a whole. Therefore, participants completed the LSRS with all of their full biological siblings in mind to provide an average score that represents their relationships. The sibling relationship quality variable was determined by participants' total scores on the LSRS. Overall, higher scores indicated stronger relationship quality. The score representing the strongest sibling relationship quality was 240 and the score representing the least strong sibling relationship quality was 48 (Riggio, 2000a). The LSRS required approximately 4 to 5 minutes to complete.

The reliability and validity of the LSRS were found with a large sample of 711 participants (Riggio, 2000b). Riggio (2000b) found reliability of the overall scale to be strong at .96. The reliability scores of the subscales were also strong: (a) .91 for adult affect; (b) .87 for

adult behavior; (c) .91 for adult cognitions; (d) .89 for child affect; (e) .84 for child behavior; and (f) .88 for child cognitions. The researcher also reported strong construct validity for the scale.

Multiracial Identity Integration Scale

The Multiracial Identity Integration Scale (MIIS) was used in the study to measure the outcome variable of multiracial identity development. This is the only scale that aligns with previous literature on multiracial identity development as it measures this construct in relation to integration without claiming one racial self-identification as healthiest (Choi-Misailidis, 2010; Kerwin & Ponterotto, 1995; Kich, 1992; Poston, 1990; Rockquemore & Laszloffy, 2005; Root, 1998). Cheng and Lee (2009) created the MIIS, which consists of eight items on a 5-point Likert scale (1 = *completely disagree* to 5 = *completely agree*). The MIIS involves the two subscales of distance and conflict (Cheng & Lee, 2009). For example, an item in the distance subscale states, "I keep everything about my different racial identities separate" (Cheng & Lee, 2009, p. 59). An item in the conflict subscale states, "I do not feel any tension between my different racial identities" (Cheng & Lee, 2009, p. 60). Participants self-reported a single number on the Likert scale to indicate how much they agreed or disagreed with each item in relation to their multiracial identity development. The multiracial identity development variable was determined by participants' total scores on the MIIS. Overall, lower scores indicated a more integrated and progressed multiracial identity development. The score representing the most integrated and progressed multiracial identity development was eight and the score representing the least integrated and progressed was 40. The MIIS required approximately 1 to 2 minutes to complete.

The reliability and validity of the MIIS were found with a sample of 57 multiracial participants (Cheng & Lee, 2009). The researchers found good reliability for the two subscales,

with .77 for distance and .70 for conflict. The reliability for the total scale was also good at .74. Cheng and Lee (2009) also reported strong construct validity for the scale.

Research Design

This study utilized a non-experimental correlational research design to examine how number of multiracial siblings, sibling phenotype similarity, and sibling relationship quality relate to the multiracial identity development of multiracial adults. A standard multiple linear regression was used to determine how the three predictor variables relate to the outcome variable. A one-way analysis of variance (ANOVA) was then used to determine the difference in multiracial identity development between multiracial adults who have full biological siblings and those who have no none.

Data Analysis

Prior to conducting the analysis, the researcher screened the data. While screening the data, the researcher noted any outliers, missing data, and entry errors. Assumptions for regression analysis and ANOVA were also examined, including normality, linearity, homoscedasticity, multicollinearity, and homogeneity of variance. The researcher then utilized descriptive statistics to describe the participant sample. Descriptors included information about participants' gender, age, sexual orientation, racial background, racial self-identification, number of siblings, age difference from their siblings, birth order, family structure, and region they were raised in. Descriptive statistics were analyzed with frequencies and percentages for categorical variables as well as means, standard deviations, and measures of central tendency for continuous variables. Correlation coefficients among all of the variables were also estimated and examined.

Multiple Linear Regression

After screening the data, the researcher utilized a multiple linear regression analysis in SPSS to examine how the three predictor variables relate to the outcome variable. Multiple linear regression analysis was appropriate because there are two or more predictor variables and one continuous outcome variable (Hahs-Vaughn, 2017). The multiple linear regression analysis informed the researcher of the amount of variance accounted for in multiracial identity development by number of multiracial siblings, sibling phenotype similarity, and sibling relationship quality.

One-Way ANOVA

The researcher then utilized a one-way ANOVA in SPSS to examine the difference in multiracial identity development between multiracial adults who have full biological siblings and those who have none. A one-way ANOVA was appropriate for this analysis of one dichotomous predictor variable and one continuous outcome variable (Hahs-Vaughn, 2017). Participants who answered "zero" to the demographic questionnaire item asking how many full biological siblings they have served as one independent group, while the other independent group consisted of participants who reported one or more on this item. The outcome variable means of the two groups were compared in order to determine if they prove statistically different from each other. The one-way ANOVA informed the researcher whether or not having multiracial siblings is a significant predictor of multiracial identity development.

Chapter Summary

This chapter discussed the study's methodology, including participants, data collection procedures, instrumentation, research design, and data analysis. This non-experimental correlational study measured how number of multiracial siblings, sibling phenotype similarity,

and sibling relationship quality relate to the multiracial identity development of multiracial adults. Lastly, the study examined the difference in multiracial identity development between multiracial adults who have multiracial siblings and those who have none. The study results help fill several gaps in the existing literature on multiracial identity development and the multiracial population.

CHAPTER 4: RESULTS

The purpose of this study was to investigate factors influencing the multiracial identity development of multiracial adults. This study aimed to answer the following research questions: (a) How do number of multiracial siblings, sibling phenotype similarity, and sibling relationship quality relate to the multiracial identity development of multiracial adults?; (a.1.) Does sibling relationship quality serve as a mediator variable between sibling phenotype similarity and multiracial identity development?; and (b) What is the difference in multiracial identity development between multiracial adults who have multiracial siblings and those who have none? The results of this research study will be presented in the following chapter. This chapter will outline the process for screening the data, descriptive statistics, instrument reliability, bivariate correlations, and results from the data analyses.

Data Screening

Prior to data analysis, the researcher screened the data using the Statistical Package for Social Sciences (SPSS) software. The data were screened for any missing values, entry errors, and outliers. Assumptions for multiple linear regression and one-way analysis of variance (ANOVA) were also examined, including normality, linearity, homoscedasticity, multicollinearity, and homogeneity of variance.

Missing Values

The researcher used Qualtrics as the online platform to complete this study. Qualtrics recorded informed consent from 761 participants. However, 198 participants only completed 76% or less of the survey and were excluded from data analysis. Qualtrics recorded that the remaining 563 participants completed 100% of the survey. The researcher continued data

analysis with all remaining participants *(N* = 563). All values for the variables were within acceptable ranges, suggesting no data entry errors occurred.

Data Screening and Statistical Assumptions

The researcher first screened for outliers and assumptions of multiple linear regression with only the 395 participants of the 563 who reported having at least one multiracial sibling. Univariate outliers were examined by generating boxplots in SPSS for the scores on number of multiracial siblings, the Sibling Phenotype Similarity Measure (SPSM), Lifespan Sibling Relationship Scale (LSRS), and Multiracial Identity Integration Scale (MIIS). There were some univariate outliers found. The number of multiracial siblings variable displayed six outliers. On the SPSM, 13 outliers were detected. The LSRS displayed only one outlier. No univariate outliers were detected on the MIIS. The data were then screened for multivariate outliers using Mahalanobis distance and five multivariate outliers were found. A sensitivity analysis suggested that the univariate and multivariate outliers did not have an influence on the results, so all outliers were included in the analysis. For univariate normality, skewness coefficients and histograms were examined. Upon visual examination, data for the LSRS and MIIS appeared to have normal distributions and the skewness coefficients were less than an absolute value of 1.0. An examination of the residual plots suggested that the homoscedasticity and linearity assumptions were satisfied. The residuals were normally distributed. The variance inflation factor for each predictor variable indicated that the assumption of noncollinearity was met as they were all less than three.

The researcher then screened for outliers and assumptions of ANOVA with the total 563 participant sample. The participants were now split into two groups for the independent variable of multiracial siblings; those who have multiracial siblings and those who do not. When

examining the boxplot for the dependent variable of multiracial identity development, two univariate outliers were detected from the 563 participants. These outliers were not overly influential, so they were kept in the data analysis. Visual examination of the data suggested the distributions appeared normal. The assumption of homogeneity of variance for ANOVA was met as indicated by the Levene's test (p = .760).

Descriptive Statistics

Prior to competing the analysis tests, the researcher analyzed the descriptive statistics of the participant sample. In the following section, the researcher will report the descriptive statistics as percentages of the total sample, frequencies, means, and standard deviations. The researcher will also utilize tables to describe the participant demographics.

Participant Demographics

Participants completed a 14-item demographic questionnaire that involved questions about their racial self-identification, racial combination, age, gender, sexual orientation, region they were raised in, siblings, and family structure. A skip logic redirected participants who indicated they have zero full biological siblings, so they only completed 10 items as the other four demographic items focused on full biological siblings. The sample included multiracial participants, or people with biological parents of two or more different racial backgrounds, regardless of how they choose to self-identify (Atkin & Yoo, 2019). Therefore, participants reported racially self-identifying in numerous ways. Only 58 (10.3%) participants self-identified as monoracial: 24 (4.3%) as Latinx/a/o, 17 (3%) as Black, 14 (2.5%) as Asian, one (0.2%) as Native American, one (0.2%) as Pacific Islander, and one (0.2%) as White. A majority of the participants, 462 (82.1%), included terms such as "biracial," "multiracial," "mixed," or "half" into their racial self-identification, displaying a desire to clearly indicate their multiracial

background. Overall, participants reported countless racial self-identifications that signified the vast uniqueness of this population.

The 563 participants ranged in age from 18 to 71 years old (M = 31.78, SD = 9.53). Participants were asked to report their gender identity by selecting one of seven options: woman, man, non-binary/gender non-conforming, transgender woman, transgender man, other (a space for free response), and prefer not to disclose. A total of 445 (79%) participants identified as women, 67 (11.9%) as men, 38 (6.7%) as non-binary/gender non-conforming, zero (0.0%) as transgender women, one (0.2%) as a transgender man, nine (1.6%) as another gender, and three (0.5%) participants preferred not to disclose their gender identity. Participants reported their sexual orientation by selecting one of seven options: homosexual/gay/lesbian, bisexual, pansexual, asexual, heterosexual/straight, other (a space for free response), and prefer not to disclose. A total of 36 (6.4%) participants identified as homosexual/gay/lesbian, 96 (17.1%) as bisexual, 25 (4.4%) as pansexual, eight (1.4%) as asexual, 370 (65.7%) as heterosexual/straight, 20 (3.6%) as another sexual orientation, and eight (1.4%) participants preferred not to disclose their sexual orientation. Participants were then asked to report which region of the United States they were predominately raised in. Participants selected one region from five options: Northeast, West, Midwest, Southwest, and Southeast. A total of 149 (26.5%) participants reported they were predominately raised in the Northeast, 143 (25.4%) in the West, 101 (17.9%) in the Midwest, 89 (15.8%) in the Southwest, and 81 (14.4%) in the Southeast.

The remainder of the demographic questionnaire involved questions about participants' siblings. When asked how many siblings they have who are not fully biological (i.e., half, step, adoptive, foster), participants' answers ranged from 0 to 15 (M = 1.34, SD = 2.11). Participants were then asked to report how many full biological siblings they have and participants' answers

ranged from 0 to 6 (*M* = 1.11, *SD* = 1.01). A total of 168 (29.8%) participants reported they have zero full biological siblings while 395 (70.2%) participants reported they have at least one. Of the 395 participants who indicated that they have full biological siblings, 374 (66.4%) reported being raised together in the same household, 17 (3.0%) reported being somewhat raised together, four (0.7%) reported not being raised together, while 168 (29.8%) accounted for participants who reported they do not have full biological siblings. Those 395 participants were then asked to report if they are the oldest, middle, or youngest in the birth order with their full biological siblings. A total of 186 (33%) reported they are the oldest, 65 (11.5%) reported they are in the middle of the birth order, 144 (25.6%) reported they are the youngest, and 168 (29.8%) participants were not asked this question due to not having full biological siblings. The age difference between participants and their full biological sibling who is closest to their age ranged from 0 to 24 years (*M* = 3.08, *SD* = 2.46). Table 1 displays the frequencies and percentages of categorical demographics reported by participants while Table 2 displays the means and standard deviations of numerical demographics.

Table 1

Categorical Demographics of Participants

Variable	Number of Responses (*N* = 563)	Percentage
Gender		
Woman	445	79.0%
Man	67	11.9%
Non-Binary/Gender Non-Conforming	38	6.7%
Transgender Woman	0	0.0%
Transgender Man	1	0.2%
Other	9	1.6%
Prefer Not to Disclose	3	0.5%
Sexual Orientation		
Homosexual/Gay/Lesbian	36	6.4%
Bisexual	96	17.1%

Pansexual	25	4.4%
Asexual	8	1.4%
Heterosexual/Straight	370	65.7%
Other	20	3.6%
Prefer Not to Disclose	8	1.4%
Region		
Northeast	149	26.5%
West	143	25.4%
Midwest	101	17.9%
Southwest	89	15.8%
Southeast	81	14.4%
Raised with Siblings		
Yes	374	66.4%
Somewhat	17	3.0%
No	4	0.7%
No Full Biological Siblings	168	29.8%
Birth Order		
Oldest	186	33.0%
Middle	65	11.5%
Youngest	144	25.6%
No Full Biological Siblings	168	29.8%

Table 2

Numerical Demographics of Participants

Variable	Mean	Standard Deviation	*N*
Age	31.78	9.53	563
Non-Full Biological Siblings	1.34	2.11	563
Full Biological Siblings	1.11	1.01	563
Difference from Closest Aged Full Biological Sibling	3.08	2.46	395

Instrument Reliability

Reliability for the three quantitative instruments utilized in this study were determined by a Cronbach's alpha of internal consistency for each instrument. The Cronbach's alpha for the scale that the researcher created, Sibling Phenotype Similarity Measure (SPSM), had a reliability

of .86. The Cronbach's alpha for the Lifespan Sibling Relationship Scale (LSRS) had a reliability of .96. Lastly, the Cronbach's alpha for the Multiracial Identity Integration Scale (MIIS) had a reliability of .62. The reliability coefficients of the SPSM and LSRS were within the optimal range for demonstrating evidence of internal consistency in the measurements. However, the reliability coefficient for the MIIS was not quite within the desirable range for demonstrating evidence of internal consistency in the measurement.

Bivariate Correlations

Pearson product coefficients were conducted in order to determine if correlations between the predictor variables (number of multiracial siblings, sibling phenotype similarity, and sibling relationship quality) and the outcome variable (multiracial identity development) existed. Table 3 displays the correlations among the predictor and outcome variables, which includes three statistically significant relationships. There was a statistically significant positive relationship between number of multiracial siblings and sibling phenotype similarity ($r = .783$, $p < .01$), indicating that sibling phenotype similarity tended to increase as the number of multiracial siblings increased. There was a statistically significant positive relationship between number of multiracial siblings and sibling relationship quality ($r = .143$, $p < .01$), indicating that sibling relationship quality tended to increase as the number of multiracial siblings increased. Lastly, there was a statistically significant positive relationship between sibling phenotype similarity and sibling relationship quality ($r = .132$, $p < .01$), indicating that sibling relationship quality tended to increase as sibling phenotype similarity increased. There was not a statistically significant relationship between the outcome variable and any of the predictor variables. The relationship between number of multiracial siblings and multiracial identity development was not statistically significant ($r = -.042$, $p = .407$). The relationship between sibling phenotype

similarity and multiracial identity development was not statistically significant (r = -.053, p = .291). Finally, the relationship between sibling relationship quality and multiracial identity development was also not statistically significant (r = -.072, p = .153).

Table 3

Pearson Correlations Among Predictor and Outcome Variables

	Number of Multiracial Siblings	Sibling Phenotype Similarity	Sibling Relationship Quality	Multiracial Identity Development
Number of Multiracial Siblings	1	.783**	.143**	-.042
Sibling Phenotype Similarity		1	.132**	-.053
Sibling Relationship Quality			1	-.072
Multiracial Identity Development				1

Note. ** Significant at the $p < 0.01$ level (2-tailed).

Multiple Linear Regression

The researcher utilized a standard multiple linear regression to predict multiracial identity development based on number of multiracial siblings, sibling phenotype similarity, and sibling relationship quality. The multiple linear regression answered the following research question: How do number of multiracial siblings, sibling phenotype similarity, and sibling relationship quality relate to the multiracial identity development of multiracial adults? Table 4 shows the means and standard deviations of the variables, including number of multiracial siblings (M = 1.58, SD = 0.84), sibling phenotype similarity (M = 7.97, SD = 5.74), sibling relationship quality (M = 163.86, SD = 35.47), and multiracial identity development (M = 21.72, SD = 5.10).

Table 4

Means and Standard Deviations of Variables

Variable	Mean	Standard Deviation	*n*
Number of Multiracial Siblings	1.58	0.84	395
Siblings Phenotype Similarity	7.97	5.74	395
Sibling Relationship Quality	163.86	35.47	395
Multiracial Identity Development	21.72	5.10	395

Results of the multiple linear regression indicated that the predictor variables did not explain a statistically significant portion of the variance in multiracial identity development ($F(3, 391) = .939$, $p = .422$, $R^2 = .007$, a*djusted* $R^2 = .000$). According to the R^2, approximately only 0.7% of the variance in multiracial identity development was explained by the predictor variables. Further, none of the predictor variables significantly predicted multiracial identity development: number of multiracial siblings ($B = .039$, $p = .936$), sibling phenotype similarity ($B = -.044$, $p = .541$)., and sibling relationship quality ($B = -.010$, $p = .193$). Number of multiracial siblings had the largest and only positive standardized coefficient ($\beta = .006$) and sibling relationship quality had the largest negative standardized coefficient ($\beta = -.066$). Table 5 displays the multiple linear regression results. The researcher did not conduct the Sobel test using bootstrapping to test sibling relationship quality as a mediator variable between sibling phenotype similarity and multiracial identity development because no correlation existed between sibling phenotype similarity and multiracial identity development nor between sibling relationship quality and multiracial identity development.

Table 5

Multiple Linear Regression Evaluating Predictors of Multiracial Identity Development

Variable	*B*	Std. Error	β	*t*-value	*p*-value
Number of Multiracial Siblings	.039	.491	.006	.080	.936
Sibling Phenotype Similarity	-.044	.072	-.050	-.612	.541
Sibling Relationship Quality	-.010	.007	-.066	-1.304	.193

One-Way ANOVA

Lastly, the researcher conducted a one-way ANOVA in SPSS in order to compare the multiracial identity development of multiracial adults who have multiracial siblings to those who have none. The one-way ANOVA answered the following research question: What is the difference in multiracial identity development between multiracial adults who have multiracial siblings and those who have none? The frequencies for the two groups of the independent variable were reviewed first. There were 395 participants who have multiracial siblings (70.2%) and 168 participants who do not have multiracial siblings (29.8%). The researcher separated the two groups to individually examine the multiracial identity development score for participants with multiracial siblings (M = 21.72, SD = 5.10) and for participants without multiracial siblings (M = 21.86, SD = 5.35). Results of the one-way ANOVA revealed that there was not a statistically significant difference in multiracial identity development between participants who have multiracial siblings and those who have none ($F(1, 561) = .085$, $p = .771$).

Chapter Summary

The purpose of this study was to examine factors that may influence the multiracial identity development of multiracial adults. The study specifically investigated if, and to what extent, a relationship existed between multiracial identity development and number of multiracial siblings, sibling phenotype similarity, and sibling relationship quality. This chapter provided the findings of the research study through presentation of the results for the data screening, descriptive statistics, instrument reliability, bivariate correlations, multiple linear regression, and one-way ANOVA.

The results indicated that the predictor variables of number of multiracial siblings, sibling phenotype similarity, and sibling relationship quality did not have a statistically significant relationship with the outcome variable of multiracial identity development. Although the predictor variables displayed statistically significant bivariate correlations with each other, they did not show a statistically significant influence on multiracial identity development. Furthermore, results indicated that there was not a statistically significant difference in multiracial identity development between participants who have multiracial siblings and those who have none.

CHAPTER 5: DISCUSSION

This research study examined the relationships between one outcome variable, multiracial identity development, and three predictor variables, number of multiracial siblings, sibling phenotype similarity, and sibling relationship quality. This research study also examined the difference in the outcome variable, multiracial identity development, between two groups, has multiracial siblings versus does not have multiracial siblings, of one dichotomous predictor variable, multiracial siblings. The results of the data analyses were reported in the previous chapter. The following chapter will discuss the results, contributions of the study, limitations of the study, implications of the findings, and recommendations for future research. The study will conclude with a final summary at the end of this chapter.

Discussion of Results

The following section will discuss the results of the research study. This section is organized by procedures of the data analyses and the results of each variable. The study results will be consistently compared to previous literature findings.

Demographic Data

The demographics of participants in this study mostly aligned with the demographics of the multiracial population across the United States. According to Parker et al. (2015) at Pew Research Center, only 39% of multiracial people racially self-identify as “mixed” or “multiracial.” In contrast, a majority of participants in this study (82.1%) racially self-identified using specific terms such as “biracial,” “multiracial,” “mixed,” or “half.” A minority of participants (10.3%) racially self-identified as monoracial. This difference in racial self-identification between the sample and previous national data may be a true reflection of the sample or may have possibly been due to multiracial people who self-identify as monoracial

choosing not to participate in this study because they do not associate themselves as much with the multiracial identity. Statistics regarding racial combinations of the national multiracial population and this sample's participants were not available or possible to compare for this study. The researcher chose to allow participants to report their racial combinations using free response spaces rather than multiple choice questions based on Critical Multiracial Theory (Harris, 2016).

Although the participant sample ranged in age from 18 to 71 years old, the mean age of 31.78 was lower than the median, which mostly aligned with the national data. The national median age of the multiracial population, including those under 18 years old, is 19 (Parker et al., 2015). However, this national median is positively skewed as multiracial people account for only 8.8% of U.S. adults while they account for 15.1% of U.S. children under 18 years old (Jones et al., 2021). The statistical mean age of only multiracial adults in the United States was not available to compare to the study sample. However, based on the national data that were available, the mean age of the sample was expected to be lower than the median. The national data reports 61% of multiracial adults are women, 39% are men, and neglects to account for genders other than these two (Parker et al., 2015). Approximately 79% of participants in this study identified as women, 11.9% identified as men, and a total of 9.1% identified as genders other than these two. While the percentage differences between women and men in this study were similar to those of the national data, they were more exaggerated. This exaggeration may be a true reflection of the sample or may have possibly been due to multiracial men being significantly less likely to racially self-identify as multiracial compared to multiracial women and, therefore, choosing not to participate in this study (Charmaraman & Grossman, 2010; Choi-Misailidis, 2010; Davenport, 2016). National data on sexual orientation of the multiracial population was not available to compare to the study sample. This study included a nationwide

sample of the United States and resulted in the country's five regions fairly evenly represented in terms of where participants were raised: Northeast (26.5%), West (25.4%), Midwest (17.9%), Southwest (15.8%), and Southeast (14.4%). Furthermore, these results aligned with the national data of the multiracial population in that multiracial people reside all across the country, with a slightly more elevated presence in the Northeast and West and the lowest presence in the Southeast (Jensen et al., 2021).

The remainder of the demographic data focused on family structure in regard to siblings. Currently, there is no national data available that exclusively reports statistics on multiracial siblings. Data on siblings of the general United States population remains minimal but were used to compare to the study sample. The average number of full biological siblings, as reported by the study participants, was 1.11. This result aligned with national data that the average family size includes 1.93, or essentially two, children (Statista, 2021). Similarly, 70.2% of the sample participants reported they have at least one full biological sibling while 29.8% reported they have none. This result also aligned with national data that 77% of the country's population has at least one sibling (Graham, 2014). However, this national data does not clearly differentiate between full biological siblings and siblings who are not full biological.

Multiple Linear Regression Analysis

The group of three predictor variables, number of multiracial siblings, sibling phenotype similarity, and sibling relationship quality, were analyzed using a multiple linear regression in order to examine their relationship with the multiracial identity development of multiracial adults. Only 395 participants of the 563 sample were included in the multiple linear regression because the other 168 participants reported they had zero full biological siblings. The results of the multiple linear regression indicated that the group of predictor variables did not explain a

statistically significant portion of the variance in multiracial identity development ($F(3, 391) = .939$, $p = .422$, $R^2 = .007$, a*djusted* $R^2 = .000$). The analysis showed that this group of predictor variables only account for 0.7% of the variance in multiracial identity development among multiracial adults. Furthermore, none of the predictor variables significantly contributed to the model or predicted multiracial identity development. A large total of 99.3% of the variance of multiracial identity development remains unaccounted for. Given the lack of foundational research in this area, it is understandable that this single study did not greatly capture a thorough explanation of multiracial identity development as this study is one of the first to examine factors that influence multiracial identity development and *the* first to quantitatively examine how siblings influence it.

Multiracial Identity Development

The 395 participants with multiracial siblings reported an average multiracial identity development score of 21.72 (*SD* =5.10), with lower scores indicating more integrated and progressed multiracial identity development (Cheng & Lee, 2009). This sample of multiracial adults had moderate levels of multiracial identity development, with the average at about midpoint of the possible range of total scores. Among previous literature, multiracial identity development is usually only investigated qualitatively. Furthermore, the only existing scale that quantitatively measures multiracial identity development in accordance with its definition is the Multiracial Identity Integration Scale (MIIS), which was used in this study (Cheng & Lee, 2009). The mean scores from previous research that used the MIIS with national samples of multiracial participants were also found to be moderate. For example, Reid Marks et al. (2020) found their sample's average score to be 22.14 (*SD* = 2.17) and McDonald et al. (2019) found their sample's

average score to be 19.92 (*SD* = 5.21). The current study sample data resulted in multiracial identity development scores that aligned with previous research.

Number of Multiracial Siblings

The bivariate correlation between number of multiracial siblings and multiracial identity development showed that the relationship was not statistically significant (r = -.042, p = .407). The most common number of multiracial siblings was one, which was reported by 60% (n = 237) of the 395 participants with multiracial siblings. Although unbalanced, this number aligned with national data that most people in the United States have one sibling (Statista, 2021). However, the study findings for this variable did not align with previous research on the relationship between number of multiracial siblings and multiracial identity development, which pointed to the likelihood that a significant relationship existed. Across monoracial literature, researchers explained the important role siblings play in racial identity development, racial affirmation, and racial socialization (Davies, 2015; Jones et al., 2018; Padilla et al., 2021; Yucel, 2014). Two studies hypothesized possible moderately negative outcomes for people with more than four siblings, but those areas do not directly relate to racial identity development (Yucel, 2013, 2014). A smaller amount of previous literature investigated how number of siblings influences multiracial identity development. Researchers who did examine this emphasized how multiracial siblings are often the only family members who share each other's exact racial makeup, increasing the importance of the racial socialization and support they offer each other (Atkin & Yoo, 2019; Cardwell & Soliz, 2020; Song, 2010). Atkin and Yoo (2019) claimed that the more sources of racial socialization one has, the further their racial identity development progresses. They further explained how monoracial family members neglect to provide the accurate racial socialization that multiracial family members do (Atkin & Yoo, 2019). Other researchers did in

fact find that multiracial siblings progress multiracial identity development through bonding over, conversing about, and reflecting on their shared racial identity and racial self-identifications (Cardwell & Soliz, 2020; Song, 2010). Still, no existing studies specifically examined the number of multiracial siblings in relation to multiracial identity development or the multiracial population.

In addition to the findings of this study not showing a significant relationship between number of multiracial siblings and multiracial identity development, the displayed direction of the correlation also did not align with previous literature. The multiple linear regression analysis showed that as the number of multiracial siblings increased by one sibling, the multiracial identity development scores increased by .039. In other words, participants with fewer multiracial siblings reported more progressed multiracial identity development, although by a small and insignificant amount. One consideration for interpreting the unexpected findings of this predictor variable is the societal tendency to compare siblings. Although Davies (2015) found that the comparative nature of sibling relationships is a natural and foundational factor in identity development, perhaps continuous comparison is harmful, whether internally comparing or externally experiencing it from others. This may be particularly true for multiracial siblings as multiracial people can racially self-identify in numerous way (Choi-Misailidis, 2010; Root, 1990; Sue & Sue, 2016). While Song (2010) found that multiracial siblings reflect upon each other's self-identifications to internally assess and encourage their siblings' and their own multiracial identity development, the element of comparison may still interfere from external sources. Song (2010) explained how many multiracial participants reported encountering pressures from family members about how to racially self-identify and microaggressions about their phenotypes in comparison to their siblings.

Phenotype dissimilarity is another consideration related to sibling comparison that may have affected the results. Researchers found that phenotype dissimilarities and ambiguity lead to discrimination from family members toward multiracial relatives and naturally separate multiracial siblings (Hordge-Freeman, 2013; Lewis, 2011; Nadal et al., 2013; Root, 1998; Song, 2010; Villegas-Gold & Tran, 2018; Waring & Bordoloi, 2019). Although phenotype similarity tends to increase with number of multiracial siblings ($r = .783$, $p < .01$), there remains the possibility for comparison of phenotypes and discrimination about phenotype dissimilarities. Sibling phenotype dissimilarities may also increase with number of multiracial siblings, though this was not measured or controlled for in the current study. The relationship between sibling comparison and racial identity development is not well documented in previous research, so it remains an area to further explore in regard to the relationship between number of multiracial siblings and multiracial identity development. Other considerations that may have affected the results are age gap among siblings, whether or not siblings were raised together in the same household, genders of siblings, and number of siblings who are not full biological. None of these possible influencing factors have been thoroughly researched in relation to racial identity development, so they were not used as predictor variables in this study. Lastly, the positive skew in the predictor variable of 60% of participants having one sibling also may have affected the results. This was the first study to examine the relationship between number of multiracial siblings and multiracial identity development, so further exploration of these siblings' dynamics and intersectionalities is needed in future studies.

Sibling Phenotype Similarity

The relationship between sibling phenotype similarity and multiracial identity development was not statistically significant in this study ($r = -.053$, $p = .291$). The

insignificance of the relationship did not align with existing literature as previous researchers suggested a significant relationship would exist. Monoracial literature found that people seek phenotype similarity to gain a sense of belonging and connection that supports racial identity development (Borr, 2019; Mackinnon et al., 2011; Thomas, 2019; Yang & Ayers, 2014). Specific to siblings, Lewis (2011) found that sibling phenotype similarity increases connection, conversation, and a sense of identity within the relationship, which other researchers claimed progress multiracial identity development (Cardwell & Soliz, 2020). Multiracial literature further explained that phenotype ambiguity and differences lead to discrimination from family members toward multiracial relatives, which harms multiracial identity development (Hordge-Freeman, 2013; Lewis, 2011; Nadal et al., 2013; Root, 1998; Tran et al., 2016; Waring & Bordoloi, 2019). In a study by Waring and Bordoloi (2019), participants reported that early memories of people discussing their phenotype dissimilarities from monoracial family members harmed their multiracial identity development. Therefore, the researcher hypothesized that the opposite would be true in that sibling phenotype similarity would significantly progress multiracial identity development. No existing studies specifically examined sibling phenotype similarity in relation to multiracial identity development or the multiracial population. Although the results were not statistically significant, the direction of the correlation aligned with previous literature. The results showed that for every one unit increase in sibling phenotype similarity, participants' total scores in multiracial identity development decreased by .044, indicating more progressed multiracial identity development.

The results indicated a correlation in the direction that previous literature suggested, but this correlation was rather small and not statistically significant. The positive skew of the Sibling Phenotype Similarity Measure (SPSM) data, as well as the scores naturally increasing with the

number of multiracial siblings, may have affected the relationship's small and insignificant correlation. Furthermore, perhaps phenotype dissimilarity also increases with number multiracial siblings. As researchers found, phenotype dissimilarity can harm multiracial identity development (Hordge-Freeman, 2013; Lewis, 2011; Nadal et al., 2013; Root, 1998; Song, 2010; Waring & Bordoloi, 2019). Phenotype dissimilarity may also increase siblings' tendency to compare themselves to each other, possibly harming their racial identity development (Davies, 2015). The relationship between sibling comparison and racial identity development is not well documented in previous research, so it remains an area to further explore in regard to the relationship between sibling phenotypes and multiracial identity development. Finding participants' average SPSM scores in accordance with how many multiracial siblings they have may have provided more accurate phenotype similarity scores by controlling for phenotype dissimilarity. Another consideration that may have affected the results is gender differences between the siblings as gender may impact phenotypes such as face shape, body type, and height (Feliciano, 2016). This was the first study to examine sibling phenotype similarity among multiracial siblings and ways in which it relates to multiracial identity development, so further exploration on how to best examine this relationship is needed in future studies.

Sibling Relationship Quality

The relationship between sibling relationship quality and multiracial identity development was not statistically significant (r = -.072, p = .153). Overall, the participants' reports of sibling relationship quality with their multiracial siblings was moderately high on the Lifespan Sibling Relationship Scale (LSRS; Riggio, 2000a). These results aligned with previous literature using the LSRS with monoracial participants, also supporting previous findings that multiracial siblings have similar quality relationships as monoracial siblings (Cardwell & Soliz,

2020; Riggio, 2000b, 2006). However, the insignificance of the relationship did not align with previous literature as researchers hypothesized that a significant relationship would exist. In monoracial literature, Francka et al. (2019) found that sibling relationship quality progressed participants' resolution in their identities, particularly in regard to physical features. Furthermore, Jones et al. (2018) found that sibling relationship quality among Latinx participants significantly increased racial identity affirmation, exploration, and resolution, which are key elements of overall racial identity development (Phinney, 1996). In multiracial literature, Cardwell and Soliz (2020) found that multiracial siblings progressed multiracial identity development and hypothesized that this ultimately depended on the sibling relationship quality. Cardwell and Soliz (2020) suggested that sibling relationship quality among multiracial siblings would result in a significantly positive correlation with multiracial identity development. Still, no previous literature tested this hypothesis. Researchers believed that sibling relationship quality progressed racial identity development due to siblings with stronger quality relationships experiencing increased frequency in conversations about racial identity with each other (Cardwell & Soliz, 2020; Jones et al., 2018). Although the results were not statistically significant, the direction of the correlation aligned with previous literature. The results showed that for every one unit increase in sibling relationship quality, participants' total scores in multiracial identity development decreased by .010, indicating more progressed multiracial identity development.

Other factors such as age gap among siblings, genders of siblings, sexual orientation differences among siblings, racial combinations, and whether or not the siblings were raised together in the same household may have impacted this small and insignificant relationship between sibling relationship quality and multiracial identity development. However, none these factors have been thoroughly researched in relation to multiracial sibling relationship quality or

racial identity development, so they were not used as predictor variables in this study. Lastly, researchers hypothesized that sibling relationship quality progresses multiracial identity development particularly due to increased frequency of conversations about racial identity (Cardwell & Soliz, 2020; Jones et al., 2018), so examining this specific variable would be informative. This was the first study to examine sibling relationship quality among multiracial siblings and ways in which it relates to multiracial identity development, so further exploration of these siblings' dynamics and intersectionalities is needed in future studies.

One-Way Analysis of Variance

The predictor variable of multiracial siblings had two groups, has multiracial siblings and does not have multiracial siblings, that were compared to each other using a one-way analysis of variance (ANOVA) in order to determine their difference in multiracial identity development. Unlike the multiple linear regression, the one-way ANOVA included all 563 participants in the analysis. The results of the one-way ANOVA indicated that there was not a statistically significant difference in multiracial identity development between participants who have multiracial siblings and those who have none ($F(1, 561) = .085$, $p = .771$). Because this study is one of the first to examine factors that influence multiracial identity development and *the* first to compare multiracial people who have full biological siblings to those who have none it is understandable that this single study did not capture significant explanations of multiracial identity development.

Multiracial Identity Development

The average multiracial identity development score among all 563 participants was 21.77 ($SD = 5.17$), with lower scores indicating more progressed multiracial identity development (Cheng & Lee, 2009). This average indicated that the total sample of multiracial adults,

including both those with multiracial siblings and those without, had moderate levels of multiracial identity development as the average remained at about midpoint of the possible range of total scores. As previously mentioned, the mean scores from existing research that used the MIIS with national samples of multiracial participants were also found to be moderate at 19.92 and 22.14 (McDonald et al., 2019; Reid Marks et al., 2020). The study's total sample data resulted in multiracial identity development scores that aligned with previous research.

Multiracial Siblings

Results of the one-way ANOVA displayed that the difference in multiracial identity development between participants who have multiracial siblings and those who have none was not statistically significant ($F(1, 561) = .085$, $p = .771$). The two groups were unbalanced as 168 (29.8%) participants reported they have no multiracial siblings and 395 (70.2%) participants reported they do, which aligned with national data that 77% of people in the United States have at least one sibling (Graham, 2014). Still, the analysis results did not align with previous research on the insignificant difference between these two groups, which suggested the likelihood that a significant difference existed. As previously discussed, monoracial literature found evidence that having siblings progresses racial identity development (Davies, 2015; Jones et al., 2018; Padilla et al., 2021; Yucel, 2014). One specific example is that Padilla et al. (2021) found that Latinx siblings significantly progressed each other's racial identity development through relatability, affirmation, and racial socialization. Furthermore, Yucel (2014) found that, starting in childhood, people who do not have siblings exhibit lower self-concept, which is an embedded aspect of racial identity development. A smaller amount of previous literature investigated how having siblings influences multiracial identity development. Researchers who did examine this emphasized how multiracial siblings are often the only family members who share each other's

racial makeup (Atkin & Yoo, 2019; Cardwell & Soliz, 2020; Song, 2010). This then makes them the most accurate sources of racial socialization for each other, which increases multiracial identity development (Atkin & Yoo, 2019; Cardwell & Soliz, 2020; Song, 2010). Two teams of researchers found evidence that multiracial siblings progress multiracial identity development through bonding over, conversing about, and reflecting on their racial self-identifications and shared racial identity (Cardwell & Soliz, 2020; Song, 2010). Still, no existing studies prior to this one compared the multiracial identity development of participants who have multiracial siblings to those who have none.

Although the findings of the one-way ANOVA did not result in a significant difference between the two groups, the differing means aligned with previous literature. Participants who have multiracial siblings reported lower scores on the MIIS (M = 21.72, SD = 5.10), which indicates that they displayed more progressed multiracial identity development. Participants who do not have multiracial siblings reported higher scores on the MIIS (M = 21.86, SD = 5.35), which indicates that they displayed less progressed multiracial identity development. Both of these average scores from the two groups also aligned with national data assessing multiracial identity development scores (McDonald et al., 2019; Reid Marks et al., 2020). While these averages aligned with previous literature, the difference was much smaller than previous researchers hypothesized and not statistically significant. One consideration for the unexpected results is that 266 (47.2%) participants, including some with zero full biological siblings, reported having at least one non-full biological sibling. Thus, perhaps having any type of sibling, full biological or non, influences multiracial identity development. Other considerations that may have affected the results of this comparison are age gap among siblings, whether or not siblings were raised together in the same household, societal tendency to compare siblings (Davies,

2015), and genders of siblings. None of these possible influencing factors have been thoroughly researched in relation to racial identity development, so they were not used as predictor variables in this study. Lastly, the unbalance between the two groups also may have affected the results. This was the first study to compare the multiracial identity development between participants with multiracial siblings and those with none, so further exploration of these siblings' dynamics and different groupings of this predictor variable is needed in future studies.

Contributions of the Study

This study contributed to the field of counseling as one of only four studies addressing multiracial siblings and their multiracial identity development, and one of only three conducted in the United States (Cardwell & Soliz, 2020; Root, 1998; Song, 2010). Additionally, this study is one of only two studies that exclusively investigates how multiracial siblings impact multiracial identity development. Moreover, this study is the first to quantitatively address the multiracial identity development of multiracial siblings. No existing literature regarding the multiracial identity development of multiracial siblings was found in counseling journals. Minimal research, in general, exists exploring multiracial identity development and factors that influence it. This significant gap in the literature causes concern as multiracial identity development directly influences overall mental health and wellness, yet little is known about it (Brittian et al., 2012; Cross et al., 2018; Nelson et al., 2018; Phinney, 1996; Ponterotto et al., 2010; Williams et al., 2012).

Furthermore, the multiracial population is currently the fastest growing racial group in the country and utilizes mental health services at rates higher than other racial groups (Jones et al., 2021; Mather & Lee, 2020; SAMHSA, 2015, 2019). The gap in the literature suggests lack of knowledge, awareness, advocacy, and skill in regard to serving multiracial clients and siblings.

The minimal research in this area implies that counselors may not be providing culturally competent and accurate counseling to multiracial clients, which aligns with previous findings, thus, harming clients (Atkin & Yoo, 2019; Kawaii-Bogue et al., 2018; Moss & Davis, 2008). This study aimed to fill this gap in the literature by exploring possible supportive factors related to ways in which multiracial siblings influence multiracial identity development, specifically examining number of multiracial siblings, sibling phenotype similarity, and sibling relationship quality. Although the study results did not indicate statistically significant findings, the results proved there is a continued need for research on multiracial identity development and multiracial siblings. This study provided a starting place for future research to build upon, which will be discussed later in this chapter.

Limitations

This study had limitations regarding design, implementation, and results. First, the study invited participation to multiracial people who were 18 years of age or over, lived in the United States at the time of data collection, and were able to read and write in English. Therefore, the results may not be generalizable to multiracial people who are under the age of 18, live outside of the United States, and do not read or write in English. The researcher could not control how well these participants represented the national population of multiracial adults or who saw the recruitment postings and decided to participate. It is also possible that the participants recruited from these organizations and groups exhibited more progressed multiracial identity development scores than excluded potential participants as their membership and social media following of those groups indicated an already existing and active interest of their multiracial identity. However, the researcher attempted to address these limitations by recruiting for a national sample, allowing all English-speaking multiracial adults in the United States to participate, and

using snowball sampling as a recruitment method. Still, the online recruitment methods and survey may have prevented potential participants from participating if they did not have access to internet or electronic devices. Another limitation was that the research design used instruments and items that involved only self-reports from participants. Therefore, the data may not accurately represent the variables along with the possible interference of social desirability bias. These limitations were addressed by not collecting any personally identifiable information and assuring participants that the survey was anonymous. This study also used a non-experimental correlational research design, so no causal inferences could be made.

Another limitation was that the MIIS is the only existing scale that quantitatively measures for multiracial identity development in accordance with previous literature's definition of the term (Cheng & Lee, 2009; Choi-Misailidis, 2010; Kerwin & Ponterotto, 1995; Kich, 1992; Poston, 1990; Rockquemore & Laszloffy, 2005). This shows that further research is needed to more thoroughly develop accurate and reliable scales for measuring multiracial identity development. A positive skew was detected for the number of multiracial siblings in that most participants had only one multiracial sibling, which also created unbalance in the two one-way ANOVA groups of has multiracial siblings and does not have multiracial siblings. The skew in the distribution was kept as it represented a natural occurrence in the sample that also reflected national data on siblings (Graham, 2014; Statista, 2021). This skew in number of multiracial siblings also influenced the positive skew in the sibling phenotype similarity variable. The more multiracial siblings a participant had, the more possibility for sibling phenotype similarity they had. The study did not measure for sibling phenotype dissimilarity, which might have also increased with number of multiracial siblings. Another limitation was that the researcher had to create a scale to measure sibling phenotype similarity because none previously existed.

Fortunately, the reliability of the SPSM was found to be strong. Still, the researcher could have created the SPSM to control for sibling phenotype dissimilarity by scoring in accordance with how many multiracial siblings a participant has, which may have provided more accurate results of the sibling phenotype similarity variable. Finally, this study was conducted during a global pandemic and a time of political and social unrest in the United States. Thus, the researcher could not account or control for the possible ways in which these factors impacted participants' willingness to participate in the study and their responses to the survey.

Implications

The lack of significance found in this study implies that much more research is needed on the multiracial population, multiracial identity development, and multiracial siblings. The insignificant findings of this study did not align with previous literature on factors that influence racial identity development, a lot of which focused on monoracial individuals. Therefore, this study reiterates that the multiracial population is more complex and unique than the monoracial population, perhaps even more so than previously expected. The results of this study suggest that the factors which significantly influence monoracial identity development may not significantly influence multiracial identity development. Furthermore, there may be factors that solely progress multiracial identity development but researchers have just not discovered them yet.

More research on multiracial identity development is needed as the multiracial population continues to increase as the fastest growing racial group and utilizes mental health services more often than other racial groups in the United States (Jones et al., 2021; Mather & Lee, 2020; SAMHSA, 2015, 2019). As national data and this study sample show, this population increase is occurring throughout the country (U.S. Census Bureau, 2021). Therefore, all counselors in the United States will continue to see a rise in the number of multiracial clients on their caseload.

Yet, mental health counselors report minimal or absence of training on this population and perpetrate microaggressions toward multiracial clients (Atkin & Yoo, 2019; Kawaii-Bogue et al., 2018; Moss & Davis, 2008). These unethical and multiculturally incompetent practices, as well as the lack of proper training, violate the ethical codes and tenets of both the American Counseling Association (ACA, 2014) and Council for the Accreditation of Counseling and Related Educational Programs (CACREP, 2015). It is critical that the mental health field actively works against the historical discrimination of the multiracial population and stereotypes that remain embedded in research today, the main one being that multiracial people are psychologically confused about their identity (Atkin & Yoo, 2019; Harris, 2016; Schlabach, 2013; Stonequist, 1937). The results of this study suggest that this stereotype is incorrect as the average score of participants' multiracial identity development was moderate rather than poor. Counselors should be wary of biases they hold toward this population, including this common stereotype, and immediately seek supervision to address them. As most of the existing literature maintains a deficit focus on factors that harm or impede upon this population's wellness, this was one of the first studies to investigate factors that support multiracial people and progress their identity development (Carter, 2013; Franco & Carter, 2019; Johnston & Nadal, 2010; Nadal et al., 2013; Nadal et al., 2011; Salahuddin & O'Brien, 2011; Schlabach, 2013; Stonequist, 1937; Sue & Sue, 2016).

In order for counselors to prepare for the continued growth of this population, much more research is needed on factors that support the mental wellness of multiracial people. In the meantime, counselor educators and researchers should ensure that they thoroughly train counselors on multiracial people, what is known to influence their mental wellness (factors that significantly impede upon multiracial identity development), and what remains unknown about

their mental wellness (factors that significantly progress multiracial identity development). Trainings should firstly explain that multiracial people may display phenotype ambiguity (Jackson, 2010; Villegas-Gold & Tran, 2018), so counselors must not assume their clients' racial backgrounds. Moreover, counselors should be taught that multiracial people have a fluid racial identity, meaning that they can racially self-identify in different ways at any time (Choi-Misailidis, 2010; Sue & Sue, 2016). Counselors should also be trained to understand that no existing literature shows one racial self-identification as healthiest, although a state of integration in their racial backgrounds benefits their mental wellness (Choi-Misailidis, 2010; Poston, 1990). When working with multiracial clients, it is important that counselors provide them space to discuss how they racially self-identify and the current state of their multiracial identity development.

The factors that progress multiracial identity development remain unknown, so counselors should allow multiracial clients to explore the factors that individually influence their own development. Importantly, counselors must not assume that what affects their monoracial clients' racial identity development will affect their multiracial clients' multiracial identity development, as this study proves. Counselors should consider the possible factors that the researcher suggested, including age, region, generation, racial combination, etc. Counselors can use the results of this study to eliminate some factors regarding siblings (number of multiracial siblings, not having multiracial siblings, sibling phenotype similarity, and sibling relationship quality). Literature does indicate that multiracial siblings progress multiracial identity development (Cardwell & Soliz, 2020), research just remains unclear as to how. Therefore, counselors may still find it beneficial to assess for family structure, conduct sibling sessions, discuss clients' sibling relationships, and determine which sibling factors are most prevalent to

each individual client's multiracial identity development. Counselors should consider the possible sibling factors that the researcher previously suggested, including age gap among siblings, genders of siblings, whether or not siblings were raised together in the same household, etc. Counselors should be careful not to outwardly compare clients with their siblings, particularly in regard to phenotype dissimilarities. Because phenotype dissimilarity and microaggressions, such as comparing multiracial individuals' phenotypes to monoracial groups, are harmful to multiracial identity development, counselors should not openly comment on multiracial clients' phenotypes (Hordge-Freeman, 2013; Tran et al., 2016; Villegas-Gold & Tran, 2018; Waring & Bordoloi, 2019). Furthermore, counselors may consider speaking with multiracial clients' parents or other family members to ensure that they are not perpetrating these microaggressions either.

Counselors upholding ACA (2014) and CACREP (2015) cultural competence and ethical standards will utilize their knowledge, skills, and awareness of these clients to proactively prevent the historical negative stereotypes from manifesting in their services to the multiracial population. The counseling field's overall awareness that negative multiracial stereotypes remain embedded in mental health research and practice will aid in this preventative change as well. Lastly, grants supporting research and training on multiracial people and multiracial identity development as well as recruitment and targeted support of multiracial faculty and students in counseling programs will greatly help fill the gap in literature and quality services for this population. While there will also be a natural increase in the number of multiracial counseling students and counselors as the racial group increases, counselors must not depend on these colleagues to fully represent or speak for the entire multiracial population. Counselors and counselor educators must be responsible for their own learning through trainings and research

rather than solely relying on limited personal experiences with multiracial people, especially considering the complexity of this population.

Future Research

Due to the minimal amount of literature on this topic of multiracial siblings and multiracial identity development, there are many remaining directions for future research to take. First, future research could continue to examine multiracial identity development in relation the three predictor variables from this study, number of multiracial siblings, sibling phenotype similarity, and sibling relationship quality, by measuring and grouping them differently. As previously mentioned in the limitations section, the SPSM could be changed to score responses in accordance with how many multiracial siblings participants have. Future researchers could also conduct a confirmatory factor analysis of the SPSM. Researchers could also choose to have participants complete the LSRS on only one of their sibling relationships, perhaps their strongest, rather than on all of their full biological sibling relationships as a whole. The one-way ANOVA variable of multiracial siblings could also be separated into more than two groups, such as zero multiracial siblings, one multiracial sibling, two multiracial siblings, and three or more multiracial siblings.

Future studies could explore other factors among multiracial siblings that may influence multiracial identity development, such as age gap among siblings, genders of siblings, sexual orientation differences among siblings, if the siblings were raised together in the same household, frequency of sibling conversations about racial identity, birth order, racial combinations, siblings internally comparing themselves to each other, and others outwardly comparing siblings to each other. Future studies could also investigate how more general and demographic variables influence multiracial identity development, including age, racial

combination, number of siblings who are not full biological, racial self-identification, phenotype, gender, sexual orientation, region, name, education level, generation, multiracial generation, and the quality of other family relationships. Specific to age, future researchers could investigate ways in which stereotypes and prejudice against the multiracial group throughout history have impacted different ages and generations of this population as well as how sibling relationships strengthen throughout adulthood. When measuring racial combinations of multiracial participants, future researchers may consider the use of multiple choice questions rather than free response spaces for easier scoring. Future research could focus on developing more valid instruments for measuring multiracial identity development. More specific to counseling practices, future studies could examine how participating in counseling services influences multiracial identity development. Lastly, a mixed methods design may be beneficial with this topic and population as, currently, there is such little known. Overall, there remains numerous avenues and directions for continued research on multiracial identity development and multiracial siblings because such minimal literature currently exists. Researchers should be consistently cognizant of the negative stereotypes about the multiracial population that remain prevalent in mental health research and first consider examining positive influences and attributes of the multiracial identity as this is also where most of the gap in literature lies. The more counselors know about what progresses multiracial identity development, the better able they will be to provide this population culturally competent services that support their overall mental wellness.

Conclusion

This study introduced the topic of multiracial siblings in regard to multiracial identity development, reviewed literature related to the variables, outlined the methodology of the study,

reported the results of the data analyses, and discussed the findings, contributions, limitations, and implications of the study. In conclusion, past researchers found that siblings progress racial identity development (Davies, 2015; Jones et al., 2018; Padilla et al., 2021; Yucel, 2014) and one researcher found that multiracial siblings progress multiracial identity development (Cardwell & Soliz, 2020). However, none have previously examined the specific ways in which multiracial siblings do so. The present study explored the relationship between three predictor variables, number of multiracial siblings, sibling phenotype similarity, and sibling relationship quality, and one outcome variable, the multiracial identity development of multiracial adults. The results showed moderate levels of multiracial identity development among participants but did not find any of the predictor variables to be statistically significant factors of multiracial identity development. The results of this study provided a starting place for investigating the influence of multiracial siblings, as well as general positive factors, on multiracial identity development. The results also emphasized the uniqueness and complexity of the multiracial population as factors that significantly progressed monoracial identity development in previous literature did not significantly progress multiracial identity development in this study. Future studies can build upon the findings of this study to thoroughly discover how multiracial siblings influence multiracial identity development and, more broadly, what factors progress multiracial identity development. Counselor educators, counselors, counseling students, and, ultimately, clients will greatly benefit from further research on this topic and increased inclusion of comprehensive training on the multiracial identity across the counseling field. Counselors' training and knowledge of factors that progress multiracial identity development will enable them to effectively support the country's fastest growing racial group toward mental wellness.

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APPENDIX A: RECRUITMENT FOR RESEARCH STUDY

Hello,

My name is Meg García, and I am a doctoral candidate in the Counselor Education and Supervision program at the University of North Carolina at Charlotte (UNCC). I am conducting a study to investigate how siblings impact the racial identity development of multiracial adults. You **do not** have to have siblings in order to participate in this study.

I am seeking survey participants who:

- Self-identify as multiracial or biracial *and/or* have biological parents of two or more different racial backgrounds (e.g., one parent is White and the other is Latinx/a/o, one parent is Native American and the other is Asian, etc.)
- Are 18 years of age or over
- Currently live in the United States
- Are able to read and write in English

This is a UNCC IRB approved study: #22-0534. Participation in the study will require approximately 5-10 minutes to complete an online survey. Participation is completely voluntary and your answers will be protected for confidentiality and anonymity. The survey will remain open for responses for eight weeks. There is no compensation for your participation in this study. Study details, consent information, and the survey can be found at the following link.

{hyperlink}

To expand the reach of participants, please forward this information to anyone that you think meets the inclusion criteria.

Thank you for your consideration in participating in this research study. If you have any questions, please contact the study team at the information below.

Thank you,

Meg A. García, MS, LCMHCA, NCC
Doctoral Candidate | Department of Counseling
University of North Carolina at Charlotte
Primary Investigator
mgarci48@uncc.edu

Sejal Parikh Foxx, PhD
Department Chair, Professor | Department of Counseling
University of North Carolina at Charlotte
Faculty Advisor, Dissertation Committee Chair
sbparikh@uncc.edu

APPENDIX B: FOLLOW-UP RECRUITMENT FOR RESEARCH STUDY

Hello,

You were recently sent an email inviting you to participate in a short online survey. **This is a follow-up email requesting your participation.** The purpose of this study is to investigate how siblings impact the racial identity development of multiracial adults. You **do not** have to have siblings in order to participate in this study.

I am seeking survey participants who:

- Self-identify as multiracial or biracial *and/or* have biological parents of two or more different racial backgrounds (e.g., one parent is White and the other is Latinx/a/o, one parent is Native American and the other is Asian, etc.)
- Are 18 years of age or over
- Currently live in the United States
- Are able to read and write in English

This is a UNCC IRB approved study: #22-0534. Participation in the study will require approximately 5-10 minutes to complete an online survey. Participation is completely voluntary and your answers will be protected for confidentiality and anonymity. The survey will remain open for responses for only two more weeks. There is no compensation for your participation in this study. Study details, consent information, and the survey can be found at the following link.

{hyperlink}

To expand the reach of participants, please forward this information to anyone that you think meets the inclusion criteria.

Thank you for your consideration in participating in this research study. If you have any questions, please contact the study team at the information below.

Thank you,

Meg A. García, MS, LCMHCA, NCC
Doctoral Candidate | Department of Counseling
University of North Carolina at Charlotte
Primary Investigator
mgarci48@uncc.edu

Sejal Parikh Foxx, PhD
Department Chair, Professor | Department of Counseling
University of North Carolina at Charlotte
Faculty Advisor, Dissertation Committee Chair
sbparikh@uncc.edu

APPENDIX C: SOCIAL MEDIA RECRUITMENT FOR RESEARCH STUDY

Hello,

My name is Meg García, and I am a doctoral candidate in the Counselor Education and Supervision program at the University of North Carolina at Charlotte (UNCC). I am conducting a study to investigate how siblings impact the racial identity development of multiracial adults. You **do not** have to have siblings in order to participate in this study.

I am seeking survey participants who:

- Self-identify as multiracial or biracial *and/or* have biological parents of two or more different racial backgrounds (e.g., one parent is White and the other is Latinx/a/o, one parent is Native American and the other is Asian, etc.)
- Are 18 years of age or over
- Currently live in the United States
- Are able to read and write in English

This is a UNCC IRB approved study: #22-0534. Participation in the study will require approximately 5-10 minutes to complete an online survey. Participation is completely voluntary and your answers will be protected for confidentiality and anonymity. The survey will remain open for responses for eight weeks. There is no compensation for your participation in this study. Study details, consent information, and the survey can be found at the following link.

{hyperlink}

To expand the reach of participants, please forward this information to anyone that you think meets the inclusion criteria.

Thank you for your consideration in participating in this research study. If you have any questions, please contact the study team at the information below.

Thank you,

Meg A. García, MS, LCMHCA, NCC
Doctoral Candidate | Department of Counseling
University of North Carolina at Charlotte
Primary Investigator
mgarci48@uncc.edu

Sejal Parikh Foxx, PhD
Department Chair, Professor | Department of Counseling
University of North Carolina at Charlotte
Faculty Advisor, Dissertation Committee Chair
sbparikh@uncc.edu

APPENDIX D: ONLINE INFORMED CONSENT FORM

Dear participant,

You are invited to participate in a quantitative research study investigating ways in which siblings impact multiracial identity development. You **do not** have to have siblings in order to participate in this study. You are eligible to participate if you (a) are 18 years of age or over, (b) currently live in the United States, (c) are able to read and write in English, and (d) self-identify as multiracial or biracial *and/or* have biological parents of two or more different racial backgrounds. Due to possible differences in experience, this study does not include multi/biethnic or multi/bicultural participants who are not multiracial (e.g., both parents are Latinx/o but one is Ecuadorian and the other is Mexican, both parents are Asian but one is Japanese and the other is Korean, etc.). Instead, we are recruiting participants who are multiracial, meaning they have biological parents of two or more different racial backgrounds (e.g., one parent is White and the other is Latinx/a/o, one parent is Asian and the other is Native American, etc.).

The benefits of your participation in this study include contributing to the current research and knowledge about multiracial people and the multiracial identity. You will also contribute to implications for counselors, counselor educators, and other social science professionals about how to better support the multiracial population. You will be asked questions about your demographic information, phenotypes (physical features), sibling relationships, and racial identity. The purpose of this study is to investigate if and how siblings influence multiracial identity development. There are minimal known risks for participating in this study such as rare emotional distress due to the nature of the survey topic. If you experience distress, you are encouraged to seek counseling services with a provider of your choice. Due to this survey being conducted online, the risk of a breach of confidentiality is possible. In an effort to minimize this risk, we will not collect any personally identifiable information and your responses will remain anonymous. The primary investigator and faculty advisor will be the only persons who will have access to the password protected responses. After the study is complete, the data could be used for future research studies or distributed to another investigator for future research studies without additional informed consent.

Participation in this research study will require approximately 5-10 minutes of your time. Participation in this research study is voluntary. You may decide to end your participation during the survey at any time without penalty. This study is approved by the Institutional Review Board (IRB) at the University of North Carolina at Charlotte (UNCC), study #22-0534. This study is under the direction of my faculty advisor, Dr. Sejal Parikh Foxx. For any questions or concerns about this research study, please contact Meg A. García at mgarci48@uncc.edu. If you have questions about your rights as a participant in this study, please contact the UNCC Office of Research Protections and Integrity at uncc-irb@uncc.edu.

By checking this box, you agree to be in this study and will continue to the survey on the following page.

☐ I understand the consent information and attest that I meet the criteria to participate. I agree to take part in this study.

APPENDIX E: DEMOGRAPHIC QUESTIONNAIRE

Please answer the following demographic questions.

1. What is your age?
   (Free response)

2. How do you identify your gender identity?
   1) Woman
   2) Man
   3) Non-binary/gender non-conforming
   4) Transgender woman
   5) Transgender man
   6) Other (free response)
   7) Prefer not to disclose

3. What is your sexual orientation?
   1) Homosexual/gay/lesbian
   2) Bisexual
   3) Pansexual
   4) Asexual
   5) Heterosexual/straight
   6) Other (free response)
   7) Prefer not to disclose

4. How do you racially self-identify (e.g., biracial, Latinx/a/o, mixed, Black, etc.)?
   (Free response)

5. What is the racial background of your biological mother?
   (Free response)

6. What is the racial background of your biological father?
   (Free response)

7. In what region were you predominately raised?
   1) Northeast
   2) Southeast
   3) Southwest
   4) Midwest
   5) West

8. How many siblings do you have who are not full biological (i.e., half, step, adoptive, foster)?
   (Drop-down options)

9. How many full biological siblings do you have? Please include deceased siblings here and in subsequent questions. (*Skip logic occurred here if participant selected "zero"*)
   (Drop-down options)

10. Were you and your full biological sibling(s) raised together in the same household?
    1) Yes
    2) Somewhat
    3) No

11. What is/are the gender(s) of your full biological sibling(s)?
    (Free response)

12. What is your place in the birth order of full biological siblings?
    1) Oldest
    2) Middle
    3) Youngest

13. What is the age difference between you and your full biological sibling who is closest to your age?
    (Free response)

14. What other comments would you like to add?
    (Optional free response)

APPENDIX F: SIBLING PHENOTYPE SIMILARITY MEASURE (SPSM)

Please read the statements below and select a number from the drop-down options indicating how many of your full biological siblings mostly share each physical feature with you.

1. Indicate how many of your full biological siblings have the same hair color as you.
2. Indicate how many of your full biological siblings have the same hair texture as you.
3. Indicate how many of your full biological siblings have the same eye color as you.
4. Indicate how many of your full biological siblings have the same eye shape as you.
5. Indicate how many of your full biological siblings have the same face shape as you.
6. Indicate how many of your full biological siblings have the same nose shape as you.
7. Indicate how many of your full biological siblings have the same lip shape as you.
8. Indicate how many of your full biological siblings are about the same height as you.
9. Indicate how many of your full biological siblings have the same skin tone as you.
10. Indicate how many of your full biological siblings have the same body type as you.
11. If relevant, input another physical feature prominent to you and indicate how many of your full biological siblings share it with you.

APPENDIX G: LIFESPAN SIBLING RELATIONSHIP SCALE (LSRS)

Please read the statements below and rate the extent to which they describe your relationship(s) with your full biological sibling(s) on average.

strongly disagree	*disagree*	*neither agree nor disagree*	*agree*	*strongly agree*
1	2	3	4	5

1. My sibling(s) make(s) me happy.	1	2	3	4	5
2. My siblings' feelings are very important to me.	1	2	3	4	5
3. I enjoy my relationship(s) with my sibling(s).	1	2	3	4	5
4. I am proud of my sibling(s).	1	2	3	4	5
5. My sibling(s) and I have a lot of fun together.	1	2	3	4	5
6. My sibling(s) frequently make(s) me very angry.	1	2	3	4	5
7. I admire my sibling(s).	1	2	3	4	5
8. I like to spend time with my sibling(s).	1	2	3	4	5
9. I presently spend a lot of time with my sibling(s).	1	2	3	4	5
10. I call my sibling(s) on the telephone frequently.	1	2	3	4	5
11. My sibling(s) and I share secrets.	1	2	3	4	5
12. My sibling(s) and I do a lot of things together.	1	2	3	4	5
13. I never talk about my problems with my sibling(s).	1	2	3	4	5
14. My sibling(s) and I borrow things from each other.	1	2	3	4	5
15. My sibling(s) and I "hang out" together.	1	2	3	4	5
16. My sibling(s) talk(s) to me about personal problems.	1	2	3	4	5
17. My sibling(s) is/are (a) good friend(s) to me.	1	2	3	4	5
18. My sibling(s) is/are very important in my life.	1	2	3	4	5
19. My sibling(s) and I are not very close.	1	2	3	4	5
20. My sibling(s) is/are one/some of my best friends.	1	2	3	4	5
21. My sibling(s) and I have a lot in common.	1	2	3	4	5
22. I believe I am very important to my sibling(s).	1	2	3	4	5
23. I know that I am one of my siblings' best friends.	1	2	3	4	5
24. My sibling(s) is/are proud of me.	1	2	3	4	5
25. My sibling(s) bothered me a lot when we were children.	1	2	3	4	5
26. I remember loving my sibling(s) very much when I was a child.	1	2	3	4	5
27. My sibling(s) made me miserable when we were children.	1	2	3	4	5
28. I was frequently angry at my sibling(s) when we were children.	1	2	3	4	5
29. I was proud of my sibling(s) when I was a child.	1	2	3	4	5
30. I enjoyed spending time with my sibling(s) as a child.	1	2	3	4	5
31. I remember feeling very close to my sibling(s) when we were children.	1	2	3	4	5
32. I remember having a lot of fun with my sibling(s) when we were children.	1	2	3	4	5
33. My sibling(s) and I often had the same friends as children.	1	2	3	4	5
34. My sibling(s) and I shared secrets as children.	1	2	3	4	5

35. My sibling(s) and I often helped each other as children.	1	2	3	4	5
36. My sibling(s) looked after me (*or* I looked after my sibling(s)) when we were children.	1	2	3	4	5
37. My sibling(s) and I often played together as children.	1	2	3	4	5
38. My sibling(s) and I did not spend a lot of time together when we were children.	1	2	3	4	5
39. My sibling(s) and I spent time together after school as children.	1	2	3	4	5
40. I talked to my sibling(s) about my problems when we were children.	1	2	3	4	5
41. My sibling(s) and I were “buddies” as children.	1	2	3	4	5
42. My sibling(s) did not like to play with me when we were children.	1	2	3	4	5
43. My sibling(s) and I were very close when we were children.	1	2	3	4	5
44. My sibling(s) and I were important to each other when we were children.	1	2	3	4	5
45. My sibling(s) had an important and positive effect on my childhood.	1	2	3	4	5
46. My sibling(s) knew everything about me when we were children.	1	2	3	4	5
47. My sibling(s) and I liked all the same things when we were children.	1	2	3	4	5
48. My sibling(s) and I had a lot in common as children.	1	2	3	4	5

APPENDIX H: MULTIRACIAL IDENTITY INTEGRATION SCALE (MIIS)

Please read the statements below and rate the extent to which they describe your multiracial experience.

completely disagree	*somewhat disagree*	*not sure*	*somewhat agree*	*completely agree*
1	2	3	4	5

1.	My racial identity is best described by a blend of all the racial groups to which I belong.	1	2	3	4	5
2.	I keep everything about my different racial identities separate.	1	2	3	4	5
3.	I am a person with a multiracial identity.	1	2	3	4	5
4.	In any given context, I am best described by a single racial identity.	1	2	3	4	5
5.	I am conflicted between my different racial identities.	1	2	3	4	5
6.	I feel like someone moving between the different racial identities.	1	2	3	4	5
7.	I feel torn between my different racial identities.	1	2	3	4	5
8.	I do not feel any tension between my different racial identities.	1	2	3	4	5

APPENDIX I: INSTRUMENT REQUESTS AND CONFIRMATIONS

Permission to Use LSRS External Inbox ×

Meg Garcia <mgarci48@uncc.edu> Sat, Oct 2, 5:13 PM (13 days ago)
to heidi.riggio, hriggio

Hi Dr. Riggio,

My name is Meg García and I am a doctoral candidate in the Counselor Education and Supervision program and the University of North Carolina at Charlotte. I am currently conducting my dissertation on multiracial siblings. I am emailing you to ask for permission to use your Lifespan Sibling Relationship Scale in my dissertation. Please let me know if this is okay with you and any other information you think I should be aware of. I am also wondering if the scale items could be answered with more than one sibling in mind.

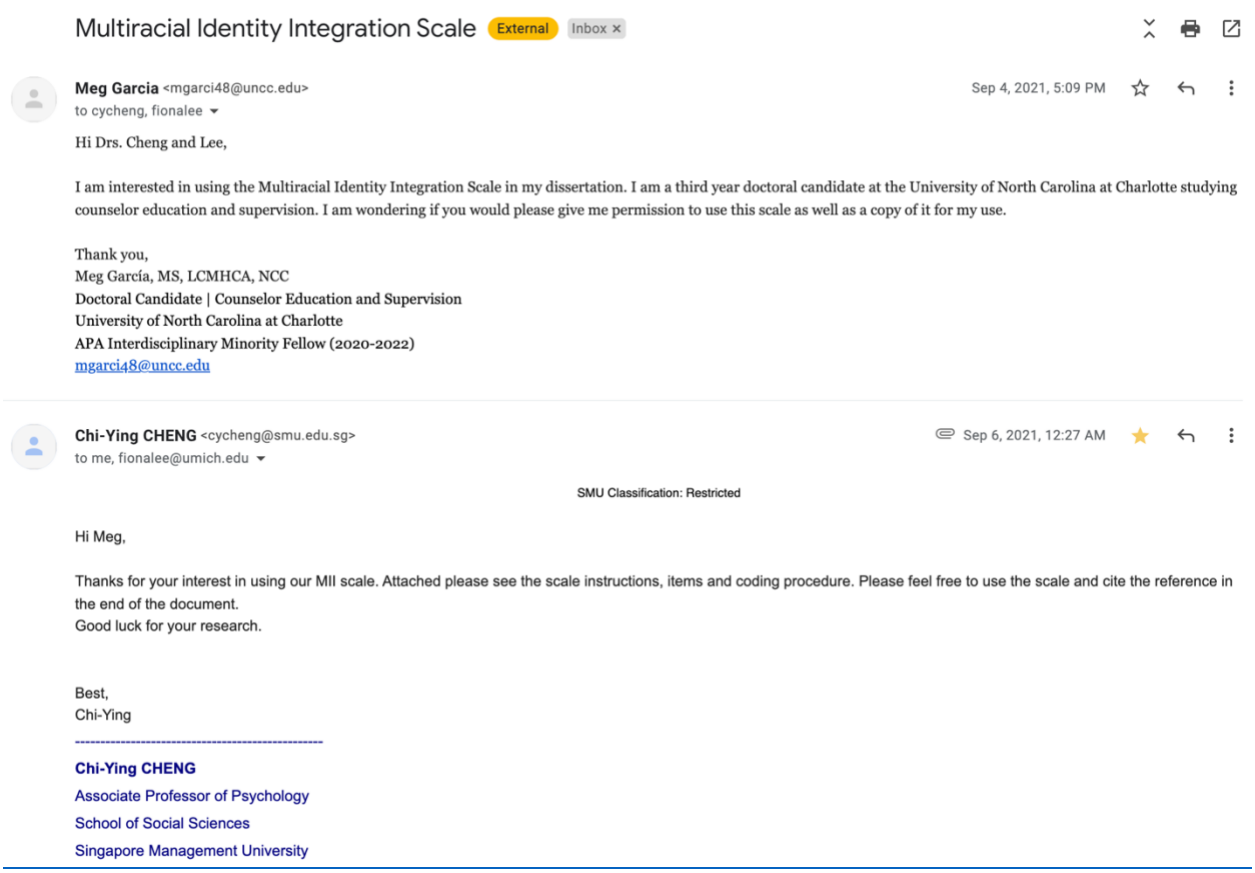
Thank you,
Meg García, MS, LCMHCA, NCC
Doctoral Candidate | Counselor Education and Supervision
University of North Carolina at Charlotte
APA Interdisciplinary Minority Fellow (2020-2022)
mgarci48@uncc.edu

Riggio, Heidi Sat, Oct 2, 5:28 PM (13 days ago)
to me

[**Caution**: Email from External Sender. Do not click or open links or attachments unless you know this sender.]

Hi Meg,
Thank you for your email, you have my permission to use the LSRS in any way you need to for your research, including translation into other languages. Yes, the LSRS can be used for all of a person's siblings, such use is included in the original validation (Riggio, 2000).
Let me know any questions you have or how I can help, good luck with your research and please keep me informed as to your results.
Best,
Heidi

Heidi R. Riggio, Ph.D.
Professor of Psychology
Senator, Academic Senate of the CSU
California State University, Los Angeles
5151 State University Drive



Multiracial Identity Integration Scale External Inbox ×

Meg Garcia <mgarci48@uncc.edu> Sep 4, 2021, 5:09 PM
to cycheng, fionalee

Hi Drs. Cheng and Lee,

I am interested in using the Multiracial Identity Integration Scale in my dissertation. I am a third year doctoral candidate at the University of North Carolina at Charlotte studying counselor education and supervision. I am wondering if you would please give me permission to use this scale as well as a copy of it for my use.

Thank you,
Meg García, MS, LCMHCA, NCC
Doctoral Candidate | Counselor Education and Supervision
University of North Carolina at Charlotte
APA Interdisciplinary Minority Fellow (2020-2022)
mgarci48@uncc.edu

Chi-Ying CHENG <cycheng@smu.edu.sg> Sep 6, 2021, 12:27 AM
to me, fionalee@umich.edu

SMU Classification: Restricted

Hi Meg,

Thanks for your interest in using our MII scale. Attached please see the scale instructions, items and coding procedure. Please feel free to use the scale and cite the reference in the end of the document.
Good luck for your research.

Best,
Chi-Ying

Chi-Ying CHENG
Associate Professor of Psychology
School of Social Sciences
Singapore Management University