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Exploring the Role of Everyday Discrimination, Acculturative Stress, and Socio-Demographic Factors on Outcomes of Perceived Stress Among South Asians Living in the Greater Atlanta Metropolitan Area

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By

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Wesleyan University
2021

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ABSTRACT

By Sushraya Jay

Exploring the Role of Everyday Discrimination, Acculturative Stress, and Socio-Demographic Factors on Outcomes of Perceived Stress Among South Asians Living in the Greater Atlanta Metropolitan Area

Background: South Asians are one of the fastest-growing ethnic groups in the country, with a population of approximately 5.7 million, many of whom have immigrated to this country seeking employment or education. The process of immigration and building a new life in a completely new environment is a stressful journey for individuals and increases the risk for acculturative stress. Perpetuated by experiences of discrimination and other sociodemographic factors such as language proficiency and income, research has demonstrated outcomes of increased perceived stress, which heightens the risk for mental health disorders such as depression and anxiety. There is very limited data concerning this population and outcome, and fewer studies examine various sociodemographic outcomes across disaggregated South Asian ethnic identities.

Purpose: Using Berry's Model of Acculturation as a framework, this study sought to examine if there are any associations between experiences of everyday discrimination, acculturative stress, and various socio-demographic factors with outcomes of perceived stress amongst South Asians living in the Greater Atlanta Metropolitan area.

Methods: This study used data from the SAHAR study at Emory University, which began collection in January 2023. This survey covered multiple domains including perceptions of health, attitudes towards healthcare, and various experiences. For the purpose of this study, variables of interest included everyday discrimination, acculturative stress, perceived stress, and socio-demographic factors such as employment status, education level, ethnicity, and language proficiency. Fisher's Exact Test and logistic regression were the primary methods utilized along with multiple regression to see if there were any effects with socio-demographic predictors.

Results: Outcomes from validated questionnaires demonstrated 53.3% of participants experienced high levels of discrimination; 76% of individuals reported high levels of acculturative stress; and 91.8% of individuals reported high perceived stress. Fisher's test and logistic regression demonstrated a significant association between low levels of discrimination and lower odds of perceived stress, and high language proficiency and lower acculturative stress. However, the relationship was not significant between acculturative stress and perceived stress.

Conclusion: Individuals experiencing lower levels of discrimination are at lower risk for experiencing perceived stress with socio-demographic factors having an impact on acculturative stress processes as well as experiences of discrimination. High levels of perceived and acculturative stress were present across the participant sample, suggesting the need for further research into the mechanisms driving such experiences and implementing culturally relevant interventions.

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Table of Contents

CHAPTER 1: INTRODUCTION

According to the 2020 United States Census Bureau, approximately 5.7 million South Asians live in the United States (U.S. Census Bureau, 2020) with the population having grown rapidly between the years 2000-2015. South Asians are one of the fastest-growing ethnic groups in the United States (Rico et al., 2023; U.S. Census Bureau, 2020), with 77% (~4.4 million) identifying as Asian-Indian, growing 50% between 2010-2020 (Rico et al., 2023; U.S. Census Bureau, 2020). Some of the countries within South Asia are India, Pakistan, Bhutan, Nepal, Bangladesh, Afghanistan, and Sri Lanka. Between these several countries, communities speak multiple languages and practice different religious and cultural traditions. Using India as an example, the country has 23 languages split across its various regions, not including the hundreds of dialects (Das Gupta, 1970; Indian Ministry of Education, N.D.). This has historically led to inter-ethnic struggles due to the government's attempts to impose the Hindi language nationally, discouraging the use and erasing knowledge development of regional languages (Das Gupta, 1970). The nature of language alone has increased conflicts between Hindi-speaking and non-Hindi-speaking Indians (Das Gupta, 1970).

Diversity of religious practices are also abundant across South Asia, with individuals primarily practicing Hinduism, Islam, Buddhism, Sikhism, Jainism, and Christianity (Pechilis & Raj, 2013). While such diversity exposes individuals to various practices, it is not without conflict. Again, using India as an example, there have been several instances of violence against Indian Muslims throughout the years, as the government pushes a Hindu Nationalist agenda, leading to further erasure of Islam and the freedom to practice religion peacefully (Pechilis & Raj, 2013; Ramachandran, 2020). The above examples attempt to shed some light on the complexity and

nuance that exists in the daily lives and narratives of people originally from South Asia. Thus, it is important to not view South Asia as one large monolith as it can be harmful when attempting to understand the complex aspects leading to experiences of oppression and harm. The previous historical inter-ethnic conflicts uphold the complicated relationships and attitudes individuals harbor toward one another (Pechilis & Raj, 2013). This complicates individuals' ability to seek connection within regional communities when moving into new environments. With such vast cultural identities present, the process of immigrating to a new country can induce a wholly different set of conflicts, contextual histories, and importantly, stress as a result of the drastic change.

While immigrating can already be incredibly stressful due to a variety of reasons including the need for legal travel documents, fleeing from natural disasters and political unrest, the concomitant need for individuals to integrate into new environments may heighten stress (Mehta, 1993; Siddiqui, 2022). This process, known as acculturation, is key for the positive experiences of immigrants within their new environment (Berry, 1992; Siddiqui, 2022). Acculturation can allow individuals to build community and confidence in the new host country while being able to retain traditional ethnocultural practices if they so wish (Berry, 1992; Mehta, 1993; Siddiqui, 2022) . The Model of Acculturation, posited by J.W. Berry, suggests that there are two dimensions in this process; the first concerning the individual's propensity to retain or reject their native culture (Berry, 1992). The second-dimension concerns the individual's willingness to adopt or reject the host or new culture. Together, the various combinations of whether the individuals adopt/reject or retain/reject leads to the following four main acculturative strategies: assimilation, separation, integration, and marginalization (Berry, 1992).

Typically, the challenges experienced when trying to adapt to a new culture, increase chances for individuals to experience acculturative stress (Berry, 1992; Siddiqui, 2022). Several factors of one's life change when immigrating to a new country, including but not limited to the types of food eaten, methods of transportation, language, and sociocultural practices or actions (Berry, 1992; Mehta, 1993). The level of ease an individual experiences in being able to adapt to their new cultural environment increases their ability to feel comfortable and adjusted to their new home, thus entering a positive acculturative experience. However, many individuals struggle to enter the process of acculturation due to barriers such as language differences. Individuals may experience discrimination in academic spaces or in the workplace on the basis of their language fluency or racial/ethnic background (Berry, 1992; Mehta, 1993). These experiences can increase feelings of isolation and acculturative stress.

Recent studies of the effects of racism on the mental health of Asian Americans have shown that racial discrimination is a notable factor in contributing to the mental health problems of this population (Gee et al., 2007; Kaduvettoor-Davidson & Inman, 2013; Tummala-Narra et al., 2012). Similarly in South Asians, an association between self-reported experiences of discrimination and risk of depression has been identified (Gee et al., 2007). However, its relationship to acculturative stress is minimally discussed. Together, experiences of discrimination are one example of how acculturative stress can be exacerbated and negatively impact one's day-to-day life, increasing the risk for mental health disorders, particularly depression, and the reduction of mental well-being factors such as self-esteem (Gee et al., 2007; Kaduvettoor-Davidson & Inman, 2013). Experiencing depression while also working to build a new life and community is incredibly difficult for individuals to experience, especially if there is a significant distance between family and other systems of social support. This can lead to feelings of isolation and increased risk for mental health

disorders (Ahmad et al., 2005; Berry, 1992). The relationship between acculturative stress and mental health indicators has not been extensively studied among South Asians living in the United States, despite the rapid, continuous growth of the population. Particularly, less is known about South Asians living in ethnic enclaves such as Atlanta, Georgia which could be helpful to better understand how acculturative experiences differ between locations.

Understanding the relationship between experiences of acculturative stress and mental health indicators amongst South Asian individuals is crucial in informing the development of culturally relevant education and care interventions in the future. The rapidly growing South Asian population in the United States (U.S. Census Bureau, 2020) demonstrates the need to support the transition process in the country to further aid in becoming integrated with their community and the available resources. Understanding the relationship between acculturative stress, discrimination, and mental health indicators can help inform programming that targets South Asian communities intending to foster increased utilization of resources and ease the acculturation process (Kaduvettoor-Davidson & Inman, 2013; Siddiqui, 2022).

As the need to explore acculturative stress further within South Asian communities becomes more necessary and relevant, this thesis sought to explore the effects of acculturative stress and discrimination on perceived stress for South Asians living in Atlanta, Georgia as well as any potential interactions with socio-demographic variables. The hypothesis is that experiences of acculturative stress and discrimination are positively associated with higher levels of perceived stress.

CHAPTER 2: LITERATURE REVIEW

Mental Health Epidemiology

Mental health encompasses an individual's emotional, psychological, and social well-being which drives one's ability to handle stress, utilize coping strategies, and make decisions in their day-to-day lives. Mental health disorders impact an individual's behavioral, and/or emotional systems which can range from mild to severe levels of impairment (SAMHSA, 2023). An individual's mental health can be affected by a variety of factors. These include but are not limited to biological/genetic, feelings of loneliness or isolation, adverse childhood experiences (ACEs) such as sexual assault or witnessing violence, and lack of socioeconomic privilege (Centers for Disease Control and Prevention, 2023; SAMHSA, 2023). Mental illness is highly prevalent in the U.S. and of public health concern with approximately 1 in 5 Americans live with a mental disorder (Centers for Disease Control and Prevention, 2023). A study conducted in 2023 by the American Psychological Association (APA) demonstrated 45% of individuals living with a mental disorder, a 14% increase from 2019 (American Psychological Association, 2023).

Mental health statistics for South Asians are limited in literature. However, a study using NLAAS data in 2002, reported approximately 20% of South Asians met the criteria for an affective, anxiety, or substance disorder with about 13% for mood disorders and 11% for anxiety (Lubin & Khandai, 2016; Masood et al., 2009). A different study using NESARCH data reported that the lifetime prevalence of a mood disorder such as anxiety or depression was about 25% amongst South Asians in the United States (S. Y. Lee et al., 2015; Lubin & Khandai, 2016). Data relating to serious mental illness (SMI) such as bipolar disorder or schizophrenia, has still not been published which will be crucial to measure for culturally relevant treatment modalities.

Immigration and Additional Mental Health Risk Factors

Individuals immigrating to a new environment carry several motivations and factors which contribute experiences of acculturation and acculturative stress. With more than 281 million individuals across the world living as immigrants, the growth of globalization has become widespread and has its benefits and detriments. Many individuals, such as refugees, have been displaced due to war and instability in their home country while other individuals choose to leave of their own volition for educational or employment opportunities (Choy et al., 2021). These motivations can represent an individual's ability to adapt and learn how to engage with the sociocultural practices of their new culture. However, depending on their access to resources such as shelter, food & water, healthcare, and communication devices such as a mobile phone, can positively impact an individual's mental health by facilitating connection and integration within their new cuture (Baeza-Rivera et al., 2022). Other factors include whether an individual can speak the new culture's language, access to social support such as through educational or employer networking opportunities, and the lack thereof can increase acculturative stress, or the level of stress and challenge an individual experiences when learning new cultural behaviors (Alegría et al., 2017; Choy et al., 2021). Acculturative stress can exhibit as loneliness, being discriminated against, and being feared of. The extent to which an individual experiences acculturative stress has a significant impact on one's mental health and their ability to thrive and acclimate to their new environment (Berry, 1992).

As of 2021, there are approximately 45 million people living in the United States who are immigrants, thus there are a multitude of distinct communities and cultures in which individuals find themselves needing to adapt to. Previous studies focusing on the impacts of discrimination and acculturation on Latino and Asian immigrants (Alegría et al., 2017) found those who have

experienced discrimination are more likely to present symptoms for psychiatric diagnosis. Further suggesting, that lower acculturation and thus increased acculturative stress increases the risk for suicidal ideation and attempts (Alegría et al., 2017).

The socio-demographic makeup of one's new environment can potentially affect the severity of psychological distress experienced. For example, a study focused on Arab Americans, which included individuals who identified as Muslim, non-White, and lived in an ethnic enclave (an area where a particular ethnic group is sparse, socially, and economically distant from the majority group) experienced increased discrimination compared to individuals who identified as Christian, white and lived outside the ethnic enclave (Abdulrahim et al., 2012). Furthermore, among Asian American immigrants, 45% reported experiencing acculturative stress as a result of discrimination, lack of language fluency, and race/ethnic origins (Lueck & Wilson, 2010). Individuals reporting experience of acculturative stress were at higher risk for lifetime incidence of major depressive disorder. Additional self-reported samples of individuals who immigrated to Chile from Colombia, Venezuela, and Haiti demonstrated approximately 46% of individuals reporting depressive symptoms, 62% reporting symptoms consistent with anxiety, and 72% stress (Baeza-Rivera et al., 2022).

South Asians and Mental Health

In recent years, the South Asian population has risen tremendously, growing 50% between 2010-2020 for a total population of ~4.7 million individuals (U.S. Census Bureau, 2020). South Asians comprise of multiple ethnic identities including Indian, Pakistani, Afghan, Bhutanese, Nepali, Sri Lanka, Bengali, and Sri Lankan. The growth of South Asians in the United States has allowed for the establishment of several ethnic communities to increase access to cultural, retail businesses, and religious spaces. There is belief that South Asians are often successful and high

achieving indiviudals as they tend to occupy advanced positions in specialties such as healthcare or business and are also highly educated. (Masood et al., 2009). This can be traced to immigration policies in 1965 which 1) allowed for the migration of Asians into the United States again and 2) established a preference based system, providing increased opportunities to those with professional degrees (E. Lee, 2015; Masood et al., 2009). However, despite the optical success of several South Asian communities and individuals in the United States, due to the wide array of inter-ethnic differences and cultural modalities, the generalization fails to account for the several psychosocial and interpersonal challenges an individual may experience including the normalization of sexual and domestic violence, immigration-related stress, financials, and discrimination by other South Asians (Chandra et al., 2016; Bhandari, 2022). Additionally, the lack of knowledge surrounding the history of South Asians and other Asian individuals immigrating into the United States impacts and perpetuates the Model Minority Myth which upholds the supposed fact that all South Asians are successful (Siddiqui, 2022). The lack of nuance and intersectionality when observing the growth and cultures of South Asians within the United States increases the risk for mental health disorders as individuals feel as though they cannot reach out for help or admit their issues (Chandra et al., 2016).. Despite the staggering level of growth that has taken place over the past two decades, there is limited data available concerning the prevalence of mental health disorders among South Asians which further exacerbates untreated mental health disorders.

Mental health within South Asian cultures is traditionally a taboo subject with many families considering it to be false, accusing individuals of being 'crazy' or that they are affected by possession of sorts leading to the use of shamans and other religious leaders to 'rid' the person of their illness. With an inherent lack and difficulty of acceptance for mental health, it can be

incredibly difficult to be open with family about one's health status and receive treatment. Primary factors impacting South Asian mental health are a variety of family factors, gender expectations, and societal expectations (Chandra et al., 2016; Loya et al., 2010). Majority of South Asian cultures place immense emphasis on the role of family and family structure. An individual is expected to be heavily involved with the family more than they are themselves, which can lead to minimizing pain or trauma leading to prioritizing family needs over personal needs, such as for personal or professional development goals that may be outside what the individual's family expects. Disruptions within relationships between immediate family members and/or extended family can lead to increased acute stress and feelings of isolation (Chandra et al., 2016; Karasz et al., 2019; Kramer et al., 2002).

Gender roles and expectations can also greatly impact the mental health of South Asian individuals, particularly women as several cultural attitudes and expectations are attempting to preserve a more conservative, traditional role of women in society. When an individual's internal desires and morals veer further away from the ethnocultural expectations of their family, this can lead to greater stress, anxiety, and even increased risk for suicide (Chandra et al., 2016; Kramer et al., 2002; Masood et al., 2009). As a result of needing to maintain familial and community expectations, these various stigmatizing and collectivist factors within South Asian culture further deter individuals from seeking help and treatment. Additionally, holding onto negative attitudes and perceptions towards mental health decreases awareness of symptoms which could lead to less self-identification and thus lower prevalence in the population (Chandra et al., 2016; Lubin & Khandai, 2016).

Acculturation and Health Outcomes

The process of immigrating to an unfamiliar country can bring many challenges and stressors for the individual as they begin their new life. Several factors including, education level, existing health conditions, job security, and other socioeconomic factors can impact an immigrant's ability to thrive in their new environment (Lueck & Wilson, 2010). Acculturation is the process of change individuals and groups undergo as an adaptation to their new environmental and ethnocultural conditions (Lueck & Wilson, 2010; Teske & Nelson, 1974). During this process, individuals learn and begin adopting beliefs, behaviors, and values from the new culture while also holding onto and incorporating them with beliefs, behaviors, and values from their native culture. This occurs at both a group level (how the societal context of both cultures compare), as well as at the individual level or psychological acculturation, which refers to moderating factors contributing to shifts in behavior (Berry, 1992).

Undergoing acculturation can include learning the language of the new culture and adopting social behaviors such as how one dresses and greets one another, as well as modifying their dietary habits (Berry, 2005). It however also includes physical adaptations such as changes to one's type of living accommodation as well as an increase or decrease in population densities. Acculturation can occur at the societal level as well, where cultural change is modified on a macro-level as a byproduct of interacting with one or more cultures and societies (Berry, 2005; Teske & Nelson, 1974). Often times this is seen in changes to the structural, institutional, and widespread cultural practices of the native culture.

Acculturation has notably been observed in association with increased rates of obesity, with one study demonstrating increase in obesity among immigrant populations without a Bachelor's degree as the duration of their stay increased, potentially due to lacking knowledge of accessible,

yet nutritious meals (Kaushal, 2009). The same study demonstrated an association with obesity and age of arrival into the Untied States; the younger the individual was, the more likely they would become obese. Among Asian immigrants, limited English proficiency is a major barrier in accessing health services as studies improved health with increased English proficiency (Gee et al., 2010). Increased length of stay in the United States was also associated with higher usage of cigarettes in Asian women (Kim & Gorman, 2022). Self-rated reports have demonstrated both a positive and negative relationship between acculturation and health, as age at migration and English proficiency tend to be a significant factor in achieving consistent positive results (Kim & Gorman, 2022).

Acculturative Stress

Acculturative stress is the deteriorating status of an individual's mental and physical health because of the conflict and tensions experienced during the process of acculturation or their willingness to integrate with the new culture (Berry, 2005; Lueck & Wilson, 2010) The extent to which an individual experiences acculturative stress is dependent on the level of difference in cultural practices between the culture of origin and the new culture (Berry, 2005; Kwan & Sodowsky, 1997; Lueck & Wilson, 2010). According to Sadowsky and Lai's 1997 study exploring acculturative factors among Chinese immigrants, the results show that depending on length of residence in the new country, one's willingness or lack thereof to adapt can be a contributing factor to the level of acculturative stress experienced (Kwan & Sodowsky, 1997; Lueck & Wilson, 2010). If an individual has low levels of acculturation, their study demonstrated that higher levels of acculturative stress were experienced (Kwan & Sodowsky, 1997; Lueck & Wilson, 2010) Acculturative stress can manifest in several, particular ways including a decline in mental health,

leading to an increase in depressive and anxiety symptoms, increased experiences with being marginalized or discriminated against (Berry, 1992, 2005; Lueck & Wilson, 2010). South Asians, like many other immigrant groups may find it difficult to maintain a diet upon arrival in the U.S. especially if residing in areas of the country where there is limited or no South Asian inventory in grocery stores. Implications for a shift to a Western diet include the risk of obesity and diabetes, leading to declining health (Lesser et al., 2014). Additionally, a significant factor for acculturative stress is the language barrier. Through the stress experienced as a by-product of the loss of a support system, foreign surroundings, and challenges with communication, Tummala-Narra & Deshpande, 2018 demonstrate links with mental health outcomes such as depression, anxiety, and substance use. Other studies demonstrate increased perceived stress among South Asians as a result of acculturative stress, potentially due to conflict between host culture and origin culture, which heightens the risk for developing full-scale mental health disorders in the future (Koneru et al., 2007).

South Asians and Acculturative Stress

As South Asians comprise of various ethnic minorities within the U.S., the immigration process from their native country introduces the sociocultural phenomenon of acculturation, or the extent to which an individual is able to adapt to new cultural traditions or expectations while retaining and incorporating beliefs from their native country (Berry, 1992). Decreased ability to integrate within the new culture while also processing the difficult experience of migration can prevent individuals from being comfortably able to ask others for help or attempt to build a wider community which can increase feelings of loneliness and isolation (Alegría et al., 2017). Among South Asian immigrants, difficulty in language and communication, intergenerational conflict,

experiencing gender and racial-based discrimination, limited access to transportation, and accessing healthcare are primary features of the acculturative stress experienced by this population (Berry, 2005; Kramer et al., 2002; Samuel, 2009). Furthermore, increasing one's language skills is pertinent to aid in improving health literacy and medical knowledge. One study found that South Asians with increased language skills were able to reduce usage of fat products such as ghee (clarified butter) or oil the longer their residence was in the country, due to becoming increasingly aware of the negative health effects high usage of fats can lead to (Lesser et al., 2014).

Everyday Discrimination

Experiences of everyday discrimination in a variety of environments including in the workplace or school, as a result of personal factors such as race, immigration status, religion, language, or gender increase an individual's acculturative stress. Overtime, repeated experiences of discrimination can increase the risk for adverse health outcomes such as cardiovascular issues and diabetes (Gee et al., 2007). Instances of racism and discrimination are a component of one's acculturative stress as it is an experience that disturbs the process of acculturation, increasing the difficulty of adaptation in other aspects of one's life, such as in building social support and cohesion (Tummala-Narra et al., 2012). Self-reported experiences of discrimination were found to have an increased risk for mental disorders including depression (Gee et al., 2007). Other studies looking into the experiences of perceived discrimination and everyday racism among South Asians have also noted the significant relationship between such adverse experiences and increased depressive symptomology (Siddiqui, 2022; Tummala-Narra et al., 2012) These cumulative negative experiences of discrimination increase the level of perceived stress during the acculturation process which further impedes the individual's ability to integrate.

Mental Health

Various negative experiences during the acculturation process such as experiences of discrimination, difficulty with communication, accessing resources, and overall adjustment with a new culture lead to an increase in acculturative stress among South Asians (Siddiqui, 2022; Tummala-Narra et al., 2012). The amalgamation of such experiences over time can increase individuals' perceived stress and overall poor mental health. Negative social interactions between competing cultures and values, or reduced quality of life such as poverty, increase the difficulty in navigating and integrating with the environment which can increase the risk for increased psychological distress, clinical depression, and stress (Hwang & Ting, 2008; Karasz et al., 2019). One study looking into refugee populations who re-settled in Australia and Austria found associations between language barriers and post-traumatic stress disorder (PTSD) and anxiety (Kartal & Kiropoulos, 2016). Social support is a primary factor in mediating acculturative stress as the presence of social networks can help ease individuals' integration into the host culture and reduce experiences of distress (Baeza-Rivera et al., 2022; Berry, 1997). A lack of social support and decreased opportunities for connection are more prevalent during migratory processes, especially if an individual's new host environment is not diverse ethnically, which can further increase the prevalence of mental health symptomology, such as depression and anxiety, due to feelings of isolation (Baeza-Rivera et al., 2022; Ra, 2023).

Theoretical Background and Grounding: Berry's Model of Acculturation

In 1992, psychologist John Berry introduced the theory behind acculturation and acculturative stress. To explain how whether an individual will be behaving as they did prior to moving to the new environment, Berry developed the acculturation model to explain different constructs and factors which may impact the cultural transition (Berry, 1992). Underlying the larger conceptual constructs and model are two main issues which include cultural maintenance and contact and participation. Cultural maintenance is the extent to which individuals prioritize their cultural identity and decide which factors are important to their maintenance. Contact and participation is if the individual is willing to become further involved and integrate themselves among other cultural groups unfamiliar to them. These two concepts guide the four primary acculturation strategies proposed by Berry which include Assimilation, Separation, Integration, and Marginalization (Berry, 1992, 1997).

Assimilation refers to an individual who is not interesting in maintaining their native cultural habits and instead seeks to learn and maintain behaviors of other cultures. Separation occurs when an individual does not wish to interact with others outside of their native culture as they wish to maintain all behaviors associated with their cultural identity. Integration is when an individual is compelled to maintain behaviors of both their new culture as well as maintaining a certain extent of cultural integrity. Finally, marginalization occurs when the individual experiences cultural loss of their native culture due to no desire for maintenance and there is little motivation to begin integrating within the new environment either, whether it be due to discrimination or other negative social interactions (Berry, 1992, 1997). With these four strategies combined, Berry develops the conceptual model for acculturation through several constructs, split up into group-level construct and individual-level variables. The first group-level construct is 'Society of Origin'

referring to the individual's original cultural environment and the context in which they were in, including political unrest, natural disasters, and poor economy. 'Society of Settlement' refers to the new environment in which the individual will be moving (Berry, 1992, 1997, 2001)fig and considers several factors such as attitudes towards immigrants, availability of supportive resources, historical contexts, attitudes towards diversity, and cultural pluralism are important to be considered when attempting to understand the various contexts that may greatly impact positive acculturative experiences. 'Group Acculturation' refers to the many avenues individuals who immigrate may have to implement changes to better adapt to their new environment (Berry, 1992, 1997, 2001). These avenues include physical changes such as urbanization, economic changes as there may be difficulties in obtaining employment, biological changes such as with diet, and overall health implications (Berry, 1992).

On the individual level, there are moderating factors prior to acculturation (i.e. age, gender, education level, language proficiency, and status) and moderating factors during acculturation (i.e. length of time spent living in new environment, social support and societal attitudes. Through the center of the model, five more constructs are included to present the process beginning from the experience of acculturation itself and moving towards overall long-term outcomes (Berry, 1992). The five constructs can be broadly described as psychological acculturation, and include acculturation experience (life events), appraisal of experience (stressors), strategies used (coping strategies), immediate effects (stress reactions), and long-term outcomes (adaptation). Together, these constructs develop the Berry conceptual framework for studying and further understanding acculturation (Berry, 1992, 1997). It is important to note that in addition, there are three sub-processes known as culture shedding, culture learning and culture conflict. Culture shedding is either the accidental or deliberate act of leaving behind certain behaviors and practices in order to

better fit into society. Culture learning occurs soon after and is when the individual learns the behaviors and teachings within the society of settlement to replace the behaviors lost. The extent to which an individual is involved with these two constructs is dependent on the motivations for moving to the new environment as well as their experiences with acculturation and strategies to further assimilate (Berry, 1992, 1997). At times, cultural learning and culture shedding can lead to a state of conflict and stress, known as culture conflict, which is when there are challenges and a level of incompatibility between the society of settlement and the society of origin which creates certain difficulties and dissonance within the individual as their beliefs are challenged (Berry, 1992, 1997). This experience of conflict and stress under the context of acculturation leads to the process known as acculturative stress which increases the risk for immigrant populations to experience additional physical and mental health problems (Berry, 1992, 1997, 2005).

Figure 1: Adapted Conceptual Model for SAHAR Study
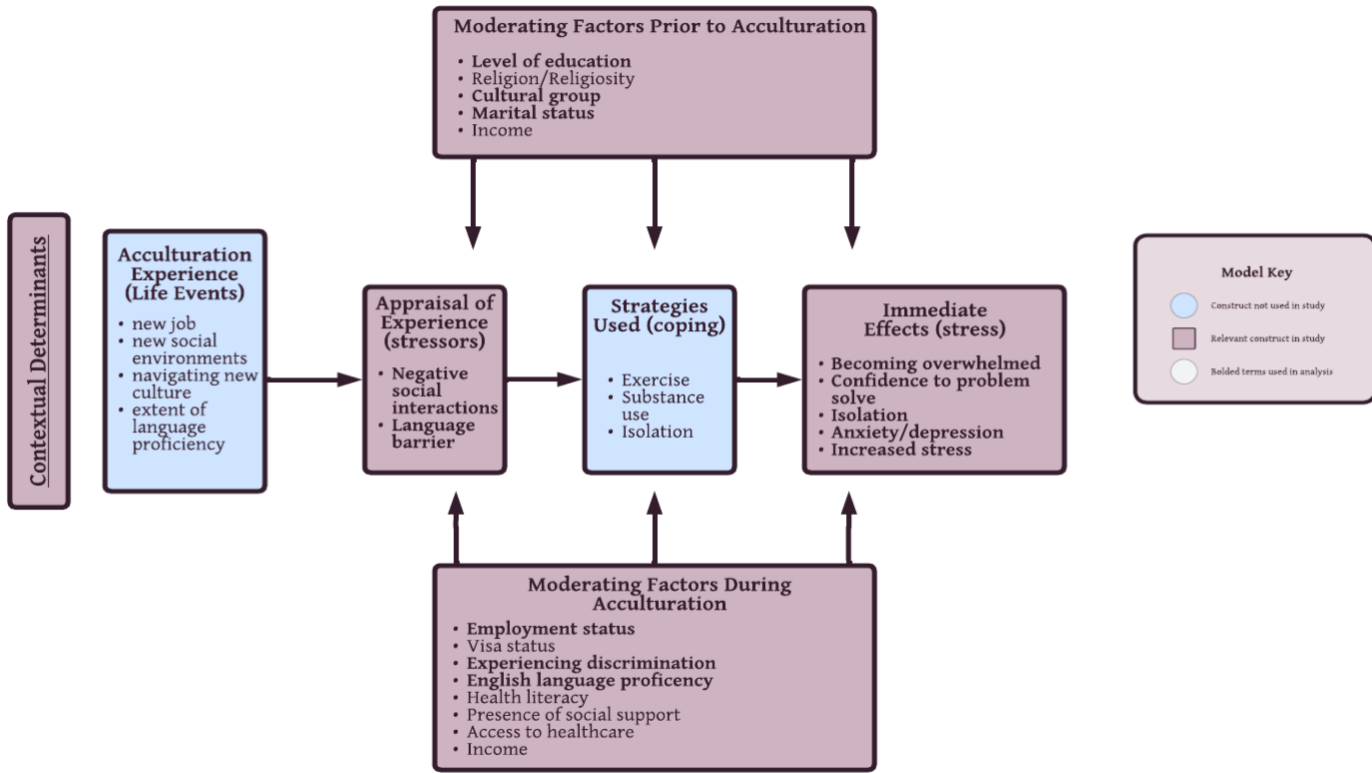
Figure 1 is adapted from Berry's 1992 model of acculturation in which the process is divided into constructs including contextual determinants such as characteristics of the new environment, and several constructs under individual determinants including being framed by moderating factors prior to acculturation which encompasses an individual's level of education, their religion and level of religiosity, cultural group and marital status to name a few and moderating factors during acculturation such as status of employment and English language appraisal. The following constructs depict their new life events following migration contributing to acculturation, potential stressors that increase the difficulty of integration and adaptation, coping

strategies used, and the immediate effects from the stressors such as health outcomes like increased stress. This model was adapted to better represent the survey population of this study and the information collected through the survey. Bolded factors within the constructs were collected in the survey and can be used to further explain the patterns and outcomes of acculturative stress.

CHAPTER 3: METHODS

Study Design

This study sought to understand the impact of acculturative stress on the mental health of South Asians living in the Greater Atlanta area. Specifically, we examined: 1) If there is an association between everyday discrimination and perceived stress 2) if there is an association between acculturative stress and perceived stress, and 3) as an additional investigative question, if there are associations between sociodemographic variables and discrimination and acculturative stress. The data collection method for this study was primary data collection through online, cross-sectional survey developed through Emory University School of Medicine's Mind & Heart Lab in the Department of Family & Preventative Medicine. This survey was developed using REDCap software in part of a larger study called the South Asian Healthy Aging Research (SAHAR) project which aims to collect data across a wide array of variables including demographic information, health literacy, perceptions of aging/dementia, and acculturative stress factors along with mental health responses. This study was approved through Emory IRB.

Participants and Sampling Procedures

Study inclusion factors during the first stage of survey dissemination included being 18 and older, residing in Georgia, and self-identifying as South Asian. Completion of the full online survey resulted in participants receiving a $25 gift card. Initial survey dissemination began January of 2023 and was accomplished through convenience sampling across Emory University student and professional networks which was a successful route of implementation reaching 50 completed surveys within 2 weeks. Due to reaching a high proportion of individuals within the 18-29 age range, the criteria for the study were changed to must be 30 or older to prevent over-representation

of younger populations. Once individuals accessed the survey, additional security and screening measures are implemented to improve validity of responses. These included a reCAPTCHA security screen to reduce the risk of bots accessing the survey as well as a participant screening section. This section included the following yes-no questions 1) Are you South Asian or South Asian-American? 2) Are you at least 30 years of age? 3) Can you read and speak in English? 4) Do you currently reside in Georgia? Other recruitment methods included marketing the study to local mosques and temples, handing out flyers to South Asian businesses such as grocery stores and restaurants, engaging with local Atlanta South Asian organizations, and attending South Asian events within the Greater Atlanta area. In addition, through data acquired from Emory Patient Health Records, 400 South Asian households in Georgia were sent letters from a mailing list with information regarding the study as well as a QR code to participate if interested. Potential participants from the mailing list were also called with study information to increase the chances of survey participation.

Measures

Demographic Variables

Demographic variables used in analysis were sex/gender (male; female; non-binary), ethnicity (Indian; Pakistani; Nepali; Bengali; Bhutanese; Sri Lankan; Afghan; Other [open-ended]), level of education (grade school or less; some high school; high school graduate or G.E.D.; some college or technical school; college graduate; graduate degree; prefer not to answer), employment status (full-time work; part-time work; homemaker; unemployed; retired; prefer not to answer), place of birth (United States; Afghanistan; Bangladesh; India; Nepal; Pakistan; Sri

Lanka; other) level of English proficiency (speaking, reading, and writing), and marital status (single; married; living with a partner; separated or divorced; widowed; prefer not to answer).

Independent Variables

Discrimination:

Five questions from the Everyday Discrimination Scale (expanded, short version, 6 questions) (Williams et al., 1997) were used in a Likert scale, asking about individuals' experiences with discrimination. Questions included asking if participants were treated with less courtesy than others, receiving poorer service in retail environments, individuals assuming a lack of intelligence, and any experiences of fear from others or harassment. Response options included "almost everyday", "at least once a week", "a few times a month", "a few times a year", "less than once a year", and "never" (1 = almost everyday to 6 = never). Participants were additionally asked to specify the primary root cause if any of the events listed happened "a few times a year" or more frequently (Williams et al., 1997). These response options included ancestry or national origins, gender, race, age, religion, height, weight, other aspects to physical appearance, sexual orientation, and education or income level. To score, responses to items were reverse coded so that 1) scores matched with the validated questionnaires and ranged from 0-5 and 2) so that fewer instances reflected lower scores while frequent instances reflected higher scores and thus higher levels of everyday discrimination. Scores ranged from 0 to 25; tertials were used to determine high, medium, and low levels of discrimination (0-7=low, 8-16=medium, and 17-25=high). The variable was dichotomized into a categorical binary variable so that there were two categories: high discrimination and medium/low discrimination. These were created by combining scores greater than or equal to 17 into one category and combining medium and low into one category.

Acculturative Stress:

The validated Riverside Acculturative Stress Inventory (Benet-Martínez & Haritatos, 2005) was used to ask participants about their experiences with acculturative stress across interpersonal, intellectual, professional, and structural pressures. Originally developed for Latino populations, the instrument has shown reliable and consistent results among Asian-Americans as well (Miller et al., 2011). Rated on a 5-point Likert scale, these five questions included asking participants whether they felt their Asian background was a limitation when looking for a job, feeling misunderstood or limited due to English skills, feeling that their cultural practices created conflict within relationships, being interpreted based on stereotypes of Asians, and feeling isolated when they are the only Asian person in a room. The response options included "strongly agree", "agree", "neutral", "disagree", and "strongly disagree" (1 = strongly agree to 5 = strongly disagree) (Benet-Martínez & Haritatos, 2005). To score, responses to items were reverse coded so that 1) scores matched with the validated questionnaires and ranged from 0 to 4 and 2) so that fewer instances reflected lower scores while frequent instances reflected higher scores and thus higher levels of acculturative stress. Scores were calculated by summing the responses from all items within the domain (Benet-Martínez & Haritatos, 2005; Merced et al., 2022). Scores ranged from 0 to 20; tertials were used to determine high, medium, and low levels of acculturative stress (0-6=low, 7-13=medium, and 14-20=high). Once the scale was determined, the variable was dichotomized into a categorical binary variable so that there were two categories: high acculturative stress and medium/low acculturative stress. These were created by combining scores from the high category into one category (greater than or equal to 14) and combining medium and low into one category (less than or equal to 13).

Dependent Variable

Perceived Stress:

Four questions from the Perceived Stress Scale (PSS) (Cohen et al., 1983) were used for the survey in a Likert scale format with four questions asking individuals about the frequency of daily stressful experiences. Questions included how often within the past month they felt unable to control important things in life, their ability to manage personal problems, whether they felt life was going as planned, and how often they felt like their difficulties could not be overcome. Response options for participants included "never", "almost never", "sometimes", "fairly often", and "often" (1 = never to 5 = very often) (Cohen et al., 1983). Items 1 and 4 were re-coded so 1 = 0 (never) and 5 = 4 (very often). Items 2 and 3 were reverse scored so 1=4 (very often) and 5=0 (never). This was done as these items focus on individuals' ability and confidence to work through their day-to-day lives, where reporting low occurrences of confidence is associated with higher stress. were then summed for a total score to represent this outocome. Scores can range 0 – 16 (Cohen et al., 1983). Similar tertial methodology as demonstrated by (Cohen et al., 1983) was used to create high, medium, and low perceived stress categories, which included 0-2=low, 3-5=medium, 6-8=high). Once the scale was determined, the variable was dichotomized into a categorical binary variable so that there were two categories: high acculturative stress and medium/low acculturative stress. These were created by combining scores from the high category into one category (greater than or equal to 6) and combining medium and low into one category (less than or equal to 5).

Socio-Demographic Variables

Socio-demographic variables were also re-coded so that new binary, categorical variables were created for analysis between independent and dependent variables. Re-coding processes followed similar methodology as previous variables, however, no reverse scoring was performed. Age was re-coded into three main groups: 18-29, 30-49, and 50+ to account for primary stages of life. Ethnicity was re-coded based off of the top three ethnicities represented which included 'Indian', 'Bengali', and 'Pakistani+Other SA Groups. Due to minimal representation among the other South Asian ethnicities such as Nepali and Bhutanese, they were combined with the Pakistani category to create 'Pakistani+All' so that all participants could be included into analysis. Employment status was divided into 'Employed' (full-time + part-time) and 'Unemployed' (homemaker, unemployed, retired, other, prefer not to answer). Other and prefer not to answer were included in the 'Unemployed' category due to small sample representation. Marital status was simplified to 'Married' (Married) and 'Unmarried' (single + living with a partner + separated or divorced + widowed + prefer not to answer). Education was divided into 'College or Higher Degree' (some college + college + graduate) and "High school and Lower' (grade school + some high school + high school/GED + prefer not to answer). English proficiency for reading, writing, and speaking was originally scored with response options including 'Very Well' 'Well' 'Some' 'A little bit' and 'Not at all'. These were then further categorized into High ('Very Well' + Well') and Low ('Some' + 'A little bit' + 'Not at all') English proficiency for speaking, reading, and writing. Gender was divided into male and female, one non-binary participant was excluded for privacy concerns and ease of analysis. Finally, birth place was also divided into two groups, 'Born in the United States' and 'Not Born in the United States'. With these binary variables created, Fisher's

Exact Test and logistic regression was able to be performed more accurately with increased strength in results.

Analysis Plan

Demographic variables of interest were first coded using SAS into cross-tabulation tables to demonstrate descriptive statistics and to show population features. Missing variables were accounted for. Once grouped into categories, Fisher's Exact test was performed instead of Chi-Squared due to the small sample size and uneven distribution. Logistic regression was performed afterward between the independent variables discrimination and acculturative stress and the dependent variable perceived stress to further determine more conclusive results on whether there was an association between the independent and dependent variables. Additional associations between socio-demographic variables and the independent variables were conducted to observe any salient relationships which could be used as control variables for the logistic regression model.

CHAPTER 4: RESULTS

Demographics:

Data from 149 participants was analyzed for the demographic portion of the survey which is provided in further detail in Table 1. The top three ethnicities represented by respondents include Indian (41.2%), Bengali (37.8%), and Pakistani (12.8%). Participants included 47.3% male with 52.7% female. The bulk of survey participants were between the ages of 30-59, with 35 individuals (23.5%) aged between 30-39 individuals, 39 individuals (26.2%) aged between 40-49, and 32 individuals (21.4%) aged between 50-59. Over half of survey respondents reported currently working full-time jobs (55.7%) with 19.5% working part-time and 6.7% unemployed. The sample was well educated with 36.2% of individuals holding a college degree while 31.5% holding a graduate or professional level degree as well. The majority of the respondents were married (77.9%) while 14.8% were single, followed by 2.7% separated/divorced and 2% widowed. More than half of participants can speak English very well (54%), while 58% can read and write English very well. Thus, the participant sample is primarily middle-aged or older, with the majority being college-educated or higher, working in full-time jobs, and highly proficient in English. The attributes of the sample population may influence participants' attitudes toward their responses and the overall outcomes as well.

Table 1: Descriptive Demographic Statistics of Study Sample (N=149)

Age	Male N (%)	Female N (%)	n (%)
18-29	7 (4.7)	14 (9.4)	22 (14.1)
30-39	22 (14.8)	13 (8.7)	35 (23.5)
40-49	17 (11.4)	22 (14.8)	39 (26.2)
50-59	12 (8)	20 (13.4)	32 (21.4
60-69	8 (5.4)	6 (4)	14 (9.4)
70+	4 (2.7)	2 (1.3)	6 (4)

Birth Place

	Male N (%)	Female N (%)	n (%)
Born in the United States	21 (14.1)	23 (15.4)	45 (30.2)
Born Outside of United States	49 (32.9)	54 (36.2)	103 (69.1)

Ethnicity

	Male N (%)	Female N (%)	n (%)
Indian	31 (20.8)	29 (19.5)	61 (40.9)
Pakistani	9 (6.04)	10 (6.7)	19 (12.8)
Nepali	3 (2.01)	6 (4.03)	9 (6.04)
Bengali	25 (16.8)	31 (20.8)	56 (37.6)
Bhutanese	0 (0)	2 (1.34)	2 (1.34)
Sri Lankan	1 (0.7)	0 (0)	1 (0.7)
Afghan	1 (0.7)	1 (0.7)	2 (1.34)
Other	1 (0.7)	0 (0)	1 (0.7)

High English Proficiency

	Male N (%)	Female N (%)	n (%)
Speaking	62 (41.6)	58 (38.9)	121 (81.2)
Reading	64 (43.0)	60 (40.3)	125 (83.9)
Writing	60 (40.3)	62 (41.6)	123 (82.6)

Low English Proficiency

	Male N (%)	Female N (%)	n (%)
Speaking	8 (5.4)	19 (12.8)	27 (18.1)
Reading	6 (4.0)	17 (11.4)	23 (15.4)
Writing	10 (6.7)	15 (10.1)	25 (16.8)

Employment Status

Full-time work	46 (30.1)	37 (24.8)	83 (55.7)
Part-time work	11 (7.4)	17 (11.4)	29 (19.5)
Homemaker	0 (0)	9(6)	9 (6)
Unemployed	3 (2)	7 (4.7)	10 (6.7)
Retired	6 (4)	3 (2)	9 (6)
Other	3 (2.01)	1 (0.7)	4 (1.4)
Prefer not to Answer	1 (0.67)	3 (2.01)	4 (2.7)

Marital Status

Single	6 (4)	15 (10)	22 (14.8)
Married	60 (40.3)	56 (37.6)	116 (77.9)
Living with a Partner	1 (0.7)	1 (0.7)	2 (1.3)
Separated or Divorced	3 (2)	1 (0.7)	4 (2.7)
Widowed	0 (0)	3 (2)	3 (2)
Prefer not to Answer	0	1 (0.7)	1 (0.7)

Education

Grade School	0 (0)	2 (1.3)	2 (1.3)
Some High School	1 (0.7)	5 (3.4)	6 (4.0)
High School Graduate or GED	8(5.4)	9 (6)	17 (11.4)
Some College or Technical School	10 (6.7)	9 (6)	19 (12.8)
College graduate	28 (18.8)	31 (20.8)	54 (36.2)
Graduate Degree (Masters) and/or Professional Degree (Doctorate)	28 (18.8)	19 (12.8)	47 (31.5)
Prefer not to Answer	1 (0.7)	2 (1.3)	3 (2)

*1 non-binary individual who was removed from data presentation for identity protection

Analysis:

Instrument Scores

Three instruments were chosen for analysis: the Everyday Discrimination Scale (EDS), the Riverside Acculturative Stress Inventory (RASI), and the Perceived Stress Scale (PSS) with 146 fully completed surveys (missing = 3). The following instrument scores were derived using the non-dichotomized, continuous variables to obtain the necessary numerical outcomes. Scores for the EDS ranged from 0-25, with 25 being the highest score a participant could receive. The mean score for everyday discrimination was 13.3, with the median score was 16 (Table 2). Using the tertials created for scoring (0-7=low, 8-16=medium, and 17-25=high), these scores suggest that the sample experienced primarily medium levels of discrimination, with score outliers of 0 potentially lowering the overall mean score. Scores for RASI ranged from 0-20, with 20 being the highest score a participant could receive. The mean score for acculturative stress was 14.2, with a median score of 15. Tertials were used again to assist with the categorization of results (0-6=low, 7-13=medium, and 14-20=high) meaning the majority of participants experienced medium levels of acculturative stress. Similar to the EDS, results were affected by participants who experienced 0 discrimination potentially skewing the results of the mean. Scores for the PSS ranged from 3-8, with 8 being the highest score a participant could receive. The mean score for perceived stress was 6.3 with a median of 6. Tertials were used once again for this scale as well (0-2=low, 3-5=medium, 6-8=high) meaning the general sample population experienced high levels of perceived stress. It is important to note that no participant reported experiencing zero levels of perceived stress as the lowest score observed for this sample was 3, which places the baseline stress level as medium at minimum.

Binary variables of the same instruments (discrimination, acculturative stress, and perceived stress) had two categories, high and medium/low to allow for categorical analysis. Results of binary descriptive statistics show 53.4% of participants experiencing medium/low levels of discrimination and 46.6% experiencing high levels of discrimination. 76% of sample reported experiencing high levels of acculturative stress while only 23.9% reported medium/low levels. Finally, an astonishing 91.8% of the sample reported experiencing high levels of stress, while only 8.2% reported medium/low levels.

Table 2: Descriptive Statistics of Utilized Instruments				
Instrument	Mean	Median	High Discrimination/Acculturative Stress/Perceived Stress N(%)	Med/Low Discrimination/Acculturative Stress/Perceived Stress N(%)
Everyday Discrimination	13.3	16	68 (46.6)	78 (53.4)
Acculturative Stress	14.2	15	111 (76.0)	35 (23.9)
Perceived Stress	6.3	6	134 (91.8)	12 (8.2)

Fisher's Exact Test

Due to the small sample size, the study conditions did not meet the assumptions necessary for Chi-Square Analysis as the cells were not distributed to an outcome of ≥5, thus Fisher's Exact Test was chosen as the appropriate measure to determine the significance of the variable's relationships and independence. Fisher's test was performed against both binary independent and dependent variables to determine if there was a preliminary relationship prior to conducting logistic regression (Table 3). Binary independent variables for discrimination (BINDV1) (Table 3a) and acculturative stress (BINDV2) (Table 3c) were run against both dependent variables for perceived stress (Stress).

Results of Fisher's test against variables discrimination and perceived stress demonstrated a significant relationship (p < 0.02), suggesting that individuals with increased experiences of discrimination are more likely to report higher levels of perceived stress (OR, 4.85; confidence interval [CI]: 1.02, 22.99). Fisher's Test was also conducted against the variable for discrimination and several socio-demographic variables (Table 3b) including employment status, birthplace, English speaking, writing, and reading proficiency, education level, and gender. Employment status and birthplace were significantly associated (p < .02; p <.0006) with everyday discrimination suggesting that being employed (OR, 2.74; CI: 1.2, 6.2) and born in the United States (OR, 3.83; CI: 1.8, 8,1) increases risk for experiencing everyday discrimination. Two age groups, 30-49 and 50+ were also significantly associated with everyday discrimination (p < .0001; p < .0018). Individuals between the ages of 30-49 are at higher risk of experiencing everyday discrimination (OR, 3.95; CI: 1.98, 7.87) while individuals in the age group 50+ have less risk associated (OR, 0.31; CI: 0.15, 0.65).

The relationship between acculturative stress and perceived stress was not significant (p <
.48) despite high representation of individuals experiencing both high acculturative stress and high
perceived stress (n=103). Despite the lack of significance, attention to odds ratio points to the
potential increased risk of experiencing perceived stress as a result of acculturative stress. (OR,
1.66; CI: 0.47, 5.9). Like discrimination, Fisher's Test was used against acculturative stress and
socio-demographic variables (Table 3d) which demonstrated several significant relationships.
Individuals who have high English speaking (p < .025) (OR, 0.21; CI: 0.05, 0.93) writing
(P<0.042) (OR, 0.23; CI: 0.05, 1.04), and reading proficiency (p < .016) (OR, 0.12; CI: 0.02, 0.92),
are aged between 18-29, (OR, 0.17; CI: 0.06, 0.45) (p < . 0004) and within the ethnic group
Pakistani+All (OR, 0.33; CI: 0.14, 0.77) (p < .02) are at lower risk of experiencing acculturative
stress. n the other hand, age group 30-49 (p < .05) (OR, 2.34; CI: 1.06, 5.16) and ethnicity Bengali
(p < .01) (OR, 3.16; CI: 1.27, 7.85) are at higher risk of experiencing acculturative stress.

Table 3a. Fisher's Exact Test of Associations (Everyday Discrimination & Perceived Stress)

Variable	OR	95% CL	P-Value
BINDV1	**4.85**	**1.02, 22.99**	**0.02**

Table 3b. Fisher's Exact Test of Associations (Everyday Discrimination & Demographics)

Demographic Variable	OR	95% CL	2-sided P-Value
Employment Status	**2.74**	**1.2, 6.2**	**0.02**
Birth Place	**3.83**	**1.8, 8.1**	**0.0006**
English Speaking Proficiency	0.64	0.28, 1.49	0.39
English Writing Proficiency	0.63	0.27, 1.51	0.38
English Reading Proficiency	0.62	0.25, 1.53	0.36
Education Level	0.59	0.26, 1.36	0.29
Gender	0.63	0.33, 1.22	0.19
Age			
18-29	0.52	0.20, 1.39	0.24
30-49	**3.95**	**1.98, 7.87**	**0.0001**
50+	**0.31**	**0.15, 0.65**	**0.0018**
Ethnicity			
Indian	1.26	0.65, 2.44	0.5
Bengali	0.62	0.31, 1.22	0.18
Pakistani + All Other Ethnicities	1.52	0.69, 3.38	0.32

*3 missing

Table 3c. Fisher's Exact Test of Associations (Acculturative Stress & Perceived Stress)

Variable	OR	95% CL	P-Value
BINDV2	1.66	0.47, 5.9	0.48

Table 3d. Fisher's Exact Test of Associations (Acculturative Stress & Demographics)

Demographic Variable	OR	95% CL	2-sided P-Value
Employment Status	1.66	0.71, 3.87	0.26
Birth Place	1.15	0.50, 2.66	0.83
English Speaking Proficiency	**0.21**	**0.05, 0.93**	**0.025**
English Writing Proficiency	**0.23**	**0.05, 1.04**	**0.042**
English Reading Proficiency	**0.12**	**0.02, 0.92**	**0.016**
Education Level	0.32	0.09, 1.14	0.08
Gender	0.83	0.38, 1.8	0.7
Age			
18-29	**0.17**	**0.06, 0.45**	**0.0004**
30-49	**2.34**	**1.06, 5.16**	**0.05**
50+	1.28	0.57, 2.88	0.69
Ethnicity			
Indian	0.91	0.42, 1.96	0.84
Bengali	**3.16**	**1.27, 7.85**	**0.01**
Pakistani + All Other Ethnicities	**0.33**	**0.14, 0.77**	**0.02**

*3 missing

Logistic Regression

Logistic regression was performed (Table 4a) between discrimination and the outcome of perceived stress, using 'High Discrimination' as the reference, which demonstrated a statistically significant relationship ($p < .046$) meaning experiencing lower levels of discrimination is associated with lowered odds in reporting higher levels of perceived stress. Multiple-variable logistic regression was performed utilizing perceived stress as the outcome and significant variables from Fisher's Exact test (employment status, birthplace, age 30-49 and 50+). None were found to be significantly associated. However, interactions did not demonstrate any significant impact on the OR of the discrimination variable (OR, 0.24; CI: 0.048, 1.24). An interesting relationship to not despite lack of significance is that the 30-49 age group and 50+ carry an increased risk of outcomes of perceived stress, (OR, 1.58; CI: 0.23, 11.02); (OR, 1.1; CI: 0.14, 8.26) while being born outside of the US, (OR, 0.61, CI: 0.09, 4.11) decreases risk of perceived stress outcomes.

Logistic regression for acculturative stress and perceived stress were not significant (Table 4c) ($p < .43$), however, an OR of 0.6 suggests lowered odds of experiencing perceived stress as a result of lower levels of acculturative stress. Multiple-variable regression with sociodemographic variables and acculturative stress were also not reported to have a significant relationship.

Table 4a. Logistic Regression *Perceived Stress vs. Discrimination*						
Variable	DF	Estimate	Standard Error	Pr > ChiSq	OR	95% CL
Intercept	1	3.5	0.71	<0.0001	-	-
Discrimination (REF=1)	**1**	**-1.58**	**0.79**	**0.046**	**0.21**	**0.043, 0.98**
Multiple-Variable Logistic Regression						
Variable		Estimate	Standard Error	Pr > ChiSq	OR	95% CL
Intercept	<u>1</u>	<u>2.9</u>	0.58	<0.0001	-	-
Discrimination	1	-0.7	0.41	0.09	0.24	0.048, 1.24
Predictors (REF = 1)						
Employment Status	1	0.19	0.36	0.6	1.47	0.35, 6.14
Birth Place	1	-0.25	0.49	0.6	0.61	0.09, 4.11
Age						
30-49 (REF=0)		0.23	0.5	0.65	1.58	0.23, 11.02
50+ (REF=0)		0.04	0.52	0.93	1.1	0.14, 8.26

*3 missing

Table 4b. Logistic Regression
Perceived Stress vs. Acculturative Stress

Variable	DF	Estimate	Standard Error	Pr > ChiSq	OR	95% CL
Intercept	1	2.3	0.32	<0.0001	-	-
Acculturative Stress (REF=1)	1	0.25	0.32	0.43	0.6	0.17, 2.13

Multiple-Variable Logistic Regression

Variable	DF	Estimate	Standard Error	Pr > ChiSq	OR	95% CL
Intercept	1	2.7	0.63	<0.0001	-	-
Acculturative Stress	1	-0.24	0.52	0.47	0.61	0.16, 2.3

Predictors

Variable	DF	Estimate	Standard Error	Pr > ChiSq	OR	95% CL
English Speaking Proficiency	1	0.44	0.76	0.56	2.42	0.12, 48.2
English Writing Proficiency	1	0.16	0.84	0.84	1.38	0.05, 36.4
English Reading Proficiency	1	0.01	0.73	0.99	1.02	0.06, 17.6
Bengali	1	0.26	0.33	0.61	1.68	0.46, 6.17

*3 Missing

CH. 5 DISCUSSION

Results Compared to Literature

The results from this study illuminated many experiences and outcomes from the sample population. Firstly, despite the high levels of English proficiency, education, and employment, all of which should be protective factors against experiencing discrimination and perceived stress, the sample population represents high levels of discrimination, acculturative stress, and perceived stress. Existing literature demonstrates that increased length of time in the United States increases perceived stress among South Asians, (Siddiqui, 2022; Uppaluri et al., 2001) potentially due to broader social forces and factors determining acculturation, however further research is needed. The high prevalence of perceived stress as a result of discrimination among this study sample urges for the development of stress-mitigating interventions for South Asians in the Great Atlanta Metropolitan area. Several studies have demonstrated the significant association between experiences of discrimination to perceived stress which have contributed to increased risk for diagnosis of mental health disorders (Kaduvettoor-Davidson & Inman, 2013; Karasz et al., 2019; Siddiqui, 2022; Tummala-Narra et al., 2012). Thus, the development of culturally relevant programs is imperative to reduce stress among the South Asian population, however further research is needed to develop an appropriate implementation plan.

Although proven not significant through analysis, the outcome that there is lowered risk among individuals with higher English proficiency is also seen in the literature (Gee et al., 2010; Kim & Gorman, 2022) and is reflective of the acculturation model as well. This suggests how existing or developing proficiency of the host culture's language can ease the individual further into the integration stage of acculturation (Berry, 1992, 1997), reducing risk of perceived stress. However, this calls for the need to improve access and awareness of English-learning programs

and translation services in several community spaces to improve outcomes for individuals who are struggling to navigate their new lives as a result of a language barrier. The primary result of this study is the fact that there is a significant relationship between discrimination and perceived stress. In this case, it is presented as a protective factor where experiencing less discrimination leads to lower odds of perceived stress. Several studies in the literature have looked into the impacts of discrimination on perceived stress (Gee et al., 2007; Koneru et al., 2007; Siddiqui, 2022), however, the researchers chose to report that increased discrimination was met with increased perceived stress. This result was also seen in backend analysis for this study however a protective perspective was chosen to demonstrate a resilience narrative and report if less harm experienced has an impact as well, which can be useful for targeted development of interventions to improve outcomes.

Acculturative Stress Variable Anomaly: Statistical Snag

During primary analysis, both the Fisher's Test and logistic regression analysis did not show any significance between acculturative stress and perceived stress. This was an unexpected finding due to frequency distribution tables demonstrating a high number of participants who experienced both high acculturative stress and high perceived stress (n=103) while only 31 participants reported experiencing high perceived stress and low acculturative stress. To further investigate, scatter plots of the continuous, non-binary variables were conducted to check the distribution of numbers but did not provide sufficient information to further help elucidate. Potential explanations for this lack of significance despite high prevalence could be as a result of a small sample size and unequal distributions of the observations across the cells which prevented accurate statistical analysis from occurring. Another potential explanation could be the types of measures used to capture perceived and acculturative stress. As the survey was not designed

initially to capture these concepts, the lack of stronger items could have made it difficult for participants to parse the difference between the two, leading to conflating answers. Further research among a larger sample population should be done to determine any existing significance. As mentioned earlier, despite this lack of statistical significance, the prevalence shows that the majority of the sample population experiences both high acculturative stress and high perceived stress thus there needs to be intervention for this population to educate on how to manage stress but also manage pathways that lead to increased acculturative stress in a culturally relevant manner.

Implications and Future Directions

The results of this study have several implications for future public health work. First, the presence of high acculturative stress, perceived stress, and discrimination among the study sample calls for the development of immigrant-specific interventions to further aid with the transition during the moving process and continued residency. In a similar vein, there needs to be culturally relevant interventions for all South Asians living in the United States to manage the high levels of acculturative and perceived stress to prevent exacerbating growing rates of health issues such as poor mental health. Mental health stigma is a documented issue within the South Asian community however persistent levels of stress will make the situation only worse, education of its effects and the reality for many must be educated to this population (Loya et al., 2010). Additionally, the results from this study reflect existing literature within this field, which further contributes to the availability and knowledge of how South Asian's are experiencing their day to day lives. However, despite the results, additional studies must be done to expand upon findings using a larger population and participant base so that overall health among South Asians can improve as there is consistent growth which does not appear to be slowing down anytime soon. Existing literature

focused on these constructs with a South Asian population base is limited and has not used current data, thus reducing the availability of impact and effects. This study shines a small light on the current-day impacts of acculturative stress and discrimination on the perceived stress of South Asians through its recent, cross-sectional methodology.

Future studies should focus on improving recruitment methodology to increase the total number of participants for more sound and valid data, and to increase representation of South Asians in public health research. Future studies should also focus on metrics concerning mental health and mental health disorders through validated questionnaires to obtain results concerning associations with acculturative stress, perceived stress, discrimination, and mental health outcomes. This would provide an improved perspective on the solidified impact of how and if acculturative stress, perceived stress, and discrimination contribute to the increased prevalence of mental health disorders. Additionally, future studies should expand acculturation and acculturative stress in the survey to include length of stay in the United States, whether they hold a visa, are a citizen, have a green card, or are undocumented, with additional acculturative stress experience outcomes to result in stronger, more reliable scores and associations.

Strengths and Limitations

This study had strengths including contributing to South Asian public health research through providing current, cross-sectional results in a specific geographical area. Research with South Asians is limited and community-oriented studies are even more difficult to come by, the results of this study, although a small sample size, shed light into the experiences of South Asians in Atlanta, Georgia, and how different socio-demographic factors can either increase or decrease overall perceived stress. Additionally, this study disaggregates the data by ethnicity, which is also

a limitation across the current literature. Demonstrating and using ethnicity in data collection and analysis prevents conflating all South Asian experiences as one and increases the representation of the various identities in research. Results by disaggregation can allow for further research to focus on reasons why disparities may exist between ethnicities.

In terms of limitations, there were two major factors that impacted several aspects of the study. The first one is that this study had a very small sample size which not only impacted the validity of results but impacted the way analysis occurred and how well the SAS program could handle the chosen statistical methods. A contributing factor to the small sample size was difficulty with recruitment despite incentives of $25 gift cards and using community networks. Moving forward if this were to be done again, recruitment should begin through developing a community advisory board utilizing champions that understand the intended population and their needs. By approaching recruitment through a more methodical manner, it can improve the outcomes of survey participation thus improving overall sample size. The small sample size also impacted how data was distributed as the outliers had a significant impact on the outcome of various statistical methods, preventing certain associations from being made. Additionally, as the focus of the survey was not on acculturative stress, discrimination, or perceived stress, there were not many items and instruments dedicated into looking at these constructs. Expanding acculturative items to include measures on length of stay in the country and income level could allow for the incorporation of the stages of acculturation in addition to stronger acculturative stress measures. Acculturative stress measures may have been conflated with perceived stress measures due to the smaller quantity and location in the survey, using additional item measures in the future can allow for stronger associations. Thus, this limits the strength of the responses as there could have been significantly more items to represent these various dimensions for a more validated response.

Furthermore, another drawback in the survey development is the lack of an appropriate mental health variable as this prevented any associations between perceived stress and mental health as well as acculturative stress and mental health from being made. Due to the self-reported, yes/no nature of the question, it did not actively measure participants' mental health or even ask them about prior mental health experiences. Thus, this prevented the study from being able to analyze outcomes of mental health associated with the main variables.

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