Psychosocial-cultural Predictors of Sport and Exercise Participation

in Latinx College Students

by

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A Thesis Presented in Partial Fulfillment
of the Requirements for the Degree
Master of Counseling

Approved April 2023 by the
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ARIZONA STATE UNIVERSITY

August 2023

ABSTRACT

Operating within the framework of a public health model that emphasizes the prevention of health concerns through the identification of risk and protective factors, this study approaches the health disparities Latinxs face from a strength-based stance through the promotion of sport and exercise participation. The purpose of this study is to understand the factors that promote sport and exercise participation within a Latinx college student sample using cross-sectional data from the Healthy Minds Study (HMS) from cohort years 2016 through 2020. It was hypothesized that psychosocial-cultural predictors (i.e., sense of belonging, discrimination, depression, anxiety, and positive mental health) would predict Latinx college students' participation in (1) sports and (2) exercise while accounting for established factors such as demographic (gender, financial hardship, US-born status) and academic (i.e., GPA, academic persistence) variables. Further, the study incorporated an exploratory approach to further examine gender-based differences in (1) sport and (2) exercise participation rates among the aforementioned study variables. Preliminary analyses using chi-squared analyses, point bi-serial correlations, and group differences using t-tests were conducted. The main analyses conducted using logistic regression indicated that psychosocial-cultural variables predict (1) sport and (2) exercise participation while accounting for demographic and academic variables. However, the classification accuracy for sport participation with the addition of psychosocial-cultural variables was not compelling so individual predictors were not analyzed. For exercise participation, gender, financial hardship, sense of belonging, discrimination and positive mental health were the only individual, significant factors. Further, in terms of gender differences, it appears that financial hardship, GPA, and discrimination uniquely affect

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Latinx women. Implications for academic institutions, coaches/fitness instructors, and

clinicians are further discussed.

ACKNOWLEDGMENTS

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CHAPTER 1

INTRODUCTION

The Latinx[1] population, inclusive of all ages, is the largest ethnic group in the

United States with a reported population count of 62.1 million and has grown 23% since

2010 (Jones et al., 2021). The pressing concern before us is that the Latinx population is

growing exponentially and continues to face increasing rates of health problems. In

comparison to non-Hispanic Whites, the largest racial group in the U.S., Hispanics[2]

report higher rates of obesity (Office of Minority Health, 2021). Among the top ten

leading causes of death for Hispanics including all age subgroups from 1980 to 2018, are

heart disease (ranked first) and diabetes (National Center for Health Statistics, 2019). Past

research has acknowledged that factors including cultural sensitivity, health literacy, and

lack of access to Hispanic health care providers are challenges to reduce these negative

health rates (Velasco-Mondragon et al., 2016). Nonetheless, another way to address this

health disparity is through a more strengths-based approach: the promotion of sport and

exercise participation.

This strengths-based approach adheres to a public health model that addresses a

health or social concern through a data-driven manner: the identification of risk and

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[1] To challenge the gender binary of the Spanish language, the term Latinx was used throughout the thesis to refer to Latinos and Latinas with cultural heritage in Latin America. For a more detailed overview of the term per the Journal of Latinx Psychology, see Cardemil and colleagues (2019).

[2] It is recognized that there are differences between the terms Hispanic and Latinx. Generally, Hispanic indicates that an individual identifies as Spanish speaking and can trace their cultural heritage to Spain. Latinx, on the other hand, speaks to individuals who have cultural heritage in Latin America regardless of whether they speak Spanish (Cardemil et al., 2019; Salinas et al., 2017). Since the term Hispanic is recognized as the official term by some government agencies such as the Office of Minority Health, information referencing Hispanic people was included in the introduction to gather the most recent information available that included Latinxs.

protective factors. This model emphasizes prevention that may happen at three levels of intervention: primary, secondary, or tertiary. The promotion of sport and exercise participation as another avenue to target health disparities falls under a secondary level of intervention. Congruent with this level of intervention, it is proposed that we shift from an already existing lack of exercise and sport participation within the Latinx population, whom can be considered an at-risk population, as an immediate response to undertake the health concerns. Further, the use of a public health model has demonstrated to have utility in confronting other social concerns such as sexual assault prevention (McCaughey & Cermele, 2017).

Sport – Significance and Involvement

Sports within the Latinx community have held great cultural and historical significance reflected in many positive outcomes. Sports have facilitated to some extent the integration into American culture (Alamillo, 2016; Iber et al., 2011) and built a sense of community internally and with other ethnic communities (Innis-Jiménez, 2009; Pescador, 2004; Valeriano, 2014). Moreover, sports have also offered a space to negotiate racial relations and escape socioeconomic hardship (Alamillo, 2016). In addition to the meaning of sports, sports have been linked to multiple benefits including social outcomes (e.g., creating healthy, satisfying social networks), improving health, and educational benefits (e.g., time management skills, retention rates) (Chen et al., 2010; Forrester, 2015; Sturts & Ross, 2013).

Given the significance and gained benefits, it is surprising that as of the 2021-2022 academic year, the NCAA (2022) reported that participation rates for Latinx athletes at the collegiate level is low (7%). However, these low participation rates could

be explained by participation drop out at earlier developmental stages. In a national youth sample, sport participation drop-out rates increased as youth aged, with the peak occurring in 9th-12th grade (Sabo & Veliz, 2008). Low participation in sports in late adolescence/early adulthood can be explained in part by lessened opportunities to participate in sports through education (Osanloo, 2018). The Latinx population reports higher high school dropout rates when compared to other racial/ethnic groups, and an overrepresentation in 2-year colleges (Krogstad, 2017), which are less likely to offer sport programs (Cameron, 2012; Ruffins, 2010). Low sport participation rates are not fully understood within the Latinx community in part due to research underemphasizing this community.

Existing literature underemphasizes Latinx athletes, including micro and macrolevel factors that predict their sport participation. For example, sport scholarship has overlooked Latinx athletes when considering personal experiences and interactions with others. Studies such as those undertaken by Bopp et al. (2017) and Flaherty and Sagas (2021) identify microlevel factors, such as perceived welcomeness, peer and coach relationships, and parental involvement among others. However, they fail to incorporate a representative sample of college Latinx athletes with low percentages of 9.8% and 15% (2 Hispanic/White, 1 Hispanic/Black athletes out of 20 participants) respectively. Other academic work that analyzes macrolevel or broader systemic factors, such as neighborhood inequality, socioeconomic status, cultural capital, and media coverage, center on Black and/or White adolescent (Eitle & Eitle, 2002) and college level (Goldsmith 2003; Carter-Francique & Richardson, 2016) athletes. Tompsett and Knoester (2021) analyzed macrolevel factors such as socioeconomic status and school contexts

with a large sample of high school students, but the sample was predominantly White, with Latinx participants making up 13.28%. Therefore, there is much work needed in this area that is inclusive of Latinx athletes; it is a call to begin reflecting in academia the reality that there are other athletes outside of the White and Black racial dichotomy (Bruening, 2005; McGovern, 2021a).

Other than McGovern (2021a), past literature has not addressed multiple microlevel and macrolevel factors that affect sport participation specific to Latinx athletes such as gender, socioeconomic status, and language among others. McGovern's (2021a) main findings with a sample of 8th and 10th grade Latinx adolescents included that boys were more likely to engage in sport participation, socioeconomic status affected girls more than boys, and native English-speaking girls participated more in sports. McGovern (2018, 2021b) has produced other qualitative research that explores how intersecting identities affect sport involvement but has centered on Latinx women only. Similarly, Lopez (2021) analyzed messages communicated implicitly and explicitly to Latinx girls (ages 12-15 years) that reflected the relation between gender, ethnicity, and class with belonging in the world of sports. The work by McGovern (2018, 2021) and Lopez (2021) thus highlighted the experiences of Latinx women and girls and began to integrate an understanding of their intersecting identities in sport participation. More work that addresses macrolevel level factors and intersecting identities is needed to address a need for a better understanding of sport participation on a different population that extends beyond adolescent athletes to encompass older Latinx college athletes.

Exercise – Significance and Involvement

Exercise, another potential avenue to address health disparities, is defined as moderate (e.g., brisk walking, bicycling) or higher intensity movement (HMS, 2017) that meets the 150 minutes/2.5 hours timeframe recommended by the American Heart Association (2018). Several studies have shown health improvements in physical activity interventions for Latinxs (Janssen & LeBlanc, 2010; Strong et al., 2005). Voices from this community also recognize and convey appreciation for the health benefits from exercising (Im et al., 2010). Im et al. (2010) reported a common theme of "Dad Died of a Heart Attack" from qualitative work with middle-aged Latinx women, which reflected an understanding that physical exercise may (1) prevent diseases and (2) reduce stress, leaving a more calm and refreshed sensation. Therefore, there is evidence to the utility of focusing on exercise to address health disparities in the Latinx population.

Although there is utility to physical activity involvement, high rates of inactivity persist within the Latinx community (Larsen et al., 2015). Compared to the national average, the Latinx population falls below the recommended federal guidelines for aerobic physical activity (54.1% versus 45%) (CDC, 2019). Rates of inactivity are not as concerning for youth and adolescents due to compulsory physical education in schools. Since physical education is mandated by 78.4% of states in elementary schools, 85.7% of states in middle/junior high schools, and 82.4% of states in high schools (Burgeson et al., 2001), exercise participation starts becoming a more pressing concern once exercise becomes voluntary, which for the most part aligns with the end of high school and beginning of young adulthood. Even before the end of high school, reported physical activity rates begin to decline (Sabo & Veliz, 2008).

To promote Latinx sport and exercise participation, it is necessary to first understand the established (demographic/academic) predictors and other often overlooked factors that influence Latinxs' involvement. This study addresses an inclusion of psychosocial-cultural factors and their unique addition in predicting Latinx involvement in sports and exercise.

CHAPTER 2

PREDICTORS

Demographic Factors

Gender

Female participation in sports has increased overtime, especially after the establishment of Title IX, which introduced more equality in sport participation. Title IX was the first policy that legally prohibited sex discrimination in any education program or federally funded activity in 1972 (U.S. Department of Education, 2019). Since then, this policy has ultimately led to the augmentation of investment in women's sports, aligning with an increase in female sports participation (Senne, 2016). However, the othering of women in sports persists through social exclusion for girls (Lopez, 2021) and through less recognition at the professional, collegiate, and high school levels (Milner & Braddock, 2016). Despite women's advancement in exercise and sport participation, men continue to outpace them in more than one developmental stage.

Latinx individuals represent a low percentage of the population that engages in competitive sport and physical activity, but participation rates within this population also vary across gender (McGovern, 2021a). Physical activity declined in Hispanic girls as they transitioned from 8th grade into high school whereas for Hispanic boys there was an increase in physical activity (Sabo & Veliz, 2008). In a study conducted by Marquez and McAuley (2006), young adult (average participant age was 29 years) Latinx men reported higher rates of occupational and overall physical activity than Latinx women although the women reported high rates of physical activity related to household duties. Similar trends are visible in collegiate sport participation; as reported by the NCAA (2022), Hispanic

male athletes along with other race/ethnicities outside of White and Black made up 12% of NCAA participants while Hispanic females contributed to 10%.

There are several factors at play that may account for the lower participation rates of Latinx women. On average, all female athletes receive significantly less sports media coverage, in comparison to male athletes (Adams & Tuggle, 2004; Cooky et al., 2013; Pedersen, 2002). Having less media coverage or exposure can lead to thoughts of undesirability for women sports, and increased exposure to women sports has shown to reduce prejudiced attitudes toward female athletes (Scheadler & Wagstaff, 2018). Generally, when female athletes are covered by media, much of the time their portrayals are objectified, focus on their appearance, and reproduce stereotypes that do not highlight their athleticism (Senne 2016, Trolan, 2013; Villalon & Weiller-Abels, 2018). Consequently, sexualized portrayals of female athletes lead to objectified appraisals from audiences rather than a focus on their status as an athlete (Daniels, 2012). Media has silenced the visibility of female athletes, and it is more concerning when considering the ramifications for racial/ethnic minority female athletes. However, one cannot begin to understand the implications for Latinx women athletes since there is an absence of studies that focus on their media coverage. Most literature speaks to the representation of the White/Black binary and does not separate Latinx women from broader categories such as "women of color" (Cooky & Rauscher, 2016). Other scholars present the inclusion of Latinx women in media as podcast guests, but do not analyze their representation in sports (Moraga, 2018). Alanis and colleagues (2022) further underscored the lack of Latinx women athlete representation not just in media but within the field of research. Over a 40-year span, Alanis and colleagues (2022) found that only

85 studies included Latinx women as part of a broader sports related study, with only 14 studies or 16% of studies focusing specifically on Latinx women in sports. Thus, the invisibility of women as athletes, especially that of Latinx women in media and research, may impact participation rates of other Latinx women in sports due to the lack of role models and encouragement.

Traditional gender and family role expectations also contribute to differences in exercise and sport participation rates for Latinxs. From a young age, Latinx women report familial obligations to complete domestic tasks/chores (McGovern, 2021a), care for younger/elder relatives (Zambrana & Zoppi, 2002), and pressure to present themselves as pious/passive (Castillo et al., 2010), which for some continues for years. These values align with "*marianismo*" (Castillo et al., 2010), a multidimensional gender role construct where Latinx women are expected to emulate the Virgin Mary by being submissive to men, virtuously pure, passive, and by emphasizing their role as family caretakers. This socialization is based on three principles: *familismo*, *respeto*, and *simpatía* (Castillo et al., 2010), and begins at a young age. Although these values are learned and expected from Latinx women at a young age, the extent to which certain dimensions are upheld and expected vary by gender (Piña-Watson et al., 2014) and may differ across Latin American cultures (Castillo et al., 2010). It is also important to acknowledge the role that institutions such as the Catholic Church have in shaping values (Cauce & Domenech-Rodriguez, 2002) such as those within the construction of marianismo and how they are used to maintain women in subordinate positions within society. This varying adherence may open the space for shifting patterns in *marianismo*

endorsement, which can affect mental health outcomes and participation rates for better or worse.

Not only do *marianismo* values endure time, but also, they then impact sport/exercise participation. Im and colleagues (2010) found that middle-aged Hispanic women reported that family and related obligations were their highest priority and therefore found little time/energy to engage in physical activity. It was also reported that women thought their culture emphasized physical activity less for women and other household activities were more encouraged because they were deemed safe (Im et al., 2010). Additionally, the appeal to participate in exercise and/or sports that do not match with a pious/passive presence may be discouraged for Latinx women. On the other hand, higher participation rates for Latinx men in sports may exist because men seem to take care of themselves first rather than treat exercise as an afterthought as women do (Im et al., 2010). Sports also help strengthen the body, are associated with social status (Brown & Stone, 2016; Shakib et al., 2011) and allow an opportunity to exhibit traits linked to manhood, such as coordination and agility, which may increase participation rates for Latinx men.

However, a caveat to traditional family and gender role expectations influencing the decrease of sport participation rates for Latinx women is that endorsement of *marianismo* values may be dependent on parental generational status. Lopez (2021) recently found that although Latinx women faced constraints due to family obligations and financial hardship, 87% agreed that their parents would support their sport participation if that was of interest to them. This finding suggests that generations may be

shifting away from or endorsing to a lesser extent some of the marianismo beliefs to support their daughters' participation in sports.

Hence, although some research supports that a difference in exercise and sport participation for Latinxs exists due to their gender and accompanying expectations, other work suggests that a recent cultural shift may eliminate that difference. Therefore, it is important to consider gender models where gender is (1) examined along with all other demographic variables and is then (2) isolated from the demographic variables by focusing on Latinx women and Latinx men separately to understand if any gender differences exist.

Socioeconomic Status

Socioeconomic status affects participation rates in both sports and exercise. Depending on a family's socioeconomic status (SES), they can afford costs/logistics related to sport involvement such as specialized training (McGovern, 2018), and support their child's college enrollment (Tompsett & Knoester, 2021), all of which can affect sport participation. Higher SES has been linked to a higher likelihood of playing college sports (Alison et al., 2018; Hextrum, 2019; Tompsett & Knoester, 2021). For instance, Tompsett and Knoester (2021) found that per unit increase in SES, 10th grade high school students were 80% more likely to become a college athlete four years later. Wilson and Pritchard (2005) found that in comparison to college athletes, college non-athletes cited financial burdens as a major stressor, which may point to the influence of financial stressors on participation rates.

Latinx athletes cite financial accessibility as a major barrier to participate in sports. McGovern (2018) interviewed 31 college Latinx women who currently were or

had previously been athletes and found that having access to financial capital facilitated sport participation. One of the participants stated, "You have to have money to be good. I mean, you can be good without the money but you need the equipment. You need to travel. To make a name for yourself" (McGovern, 2018, p.157). Thus, sport participation is not solely a matter of excelling as an athlete but can be dependent on the costs needed to participate and develop skills such as paying for equipment and transportation. The influence of socioeconomic status was also found to be greater for Latinx female adolescent athletes (McGovern, 2021), but more research is needed to understand whether this continues to be the case in later developmental stages. Since socioeconomic status has proven to affect Latinx sport participation, it is concerning that the Latinx population is overrepresented in lower socioeconomic sectors. The U.S. Census Bureau reported that Hispanics disproportionately comprised 28.1% of the population living in poverty while they made up 18.7% of the total U.S. population (Creamer, 2020).

Hispanics are overrepresented in lower socioeconomic sectors even when they comprise a great portion of the U.S. labor force because they work in lower paying occupations. Further, one in five workers from the U.S. labor force will be Hispanic by 2030 (Dubina, 2021). These numbers demonstrate the high value and need placed on labor by the Latinx population, which in turn affects exercise involvement rates. Im and colleagues (2010) found that middle-aged Latinx women viewed exercise as a waste of time because it did not directly generate money. Exercising was seen as missed time that could have been better spent working to make money. Belonging to a lower socioeconomic bracket can then be related to valuing labor not just culturally but out of necessity, which may negatively affect exercise participation rates.

Citizenship and Generational Status

Citizenship and generational status hold a space for the stories of immigration of a community and influence many of the day-to-day experiences of Latinxs through additional barriers and empowerment. Additional obstacles emerge due to language barriers that often align with generational status, which refers to being born outside of the U.S. (first-generation) and subsequent generations born in the U.S. thereafter (Peña et al., 2008). Adolescent girls who learned English as a second language (likely first- or second-generation immigrants) participated less in sports than their counterparts whose native language was English (likely third/+ generation immigrants) (McGovern, 2021a). In interviews with college Latinx women, McGovern (2021b) found that first and second-generation Latinx women athletes reported that their parents' limited English proficiency prevented them from speaking to other parents or coaches. Furthermore, Stodolska et al. (2020) found that Latinx frequent users and non-regular users (median age not reported) of a park district's recreational program (which included sports) reported the struggles of being unable to navigate English-only websites for required online registrations to participate in the programs. Signs to find facilities were not written in Spanish and even when attempts for inclusivity were made, materials were poorly translated to Spanish. Stodolska and colleagues (2020) further support McGovern's (2021b) claims that sport opportunities are less accessible to those individuals that are not fluent in English, and this is exacerbated if they also belong to a lower socioeconomic bracket.

Citizenship status also carries the weight of having to pass on opportunities to participate out of fear and added complexities. Many Latinx individuals reside in the U.S. without legal documentation and are often referred to as undocumented immigrants.

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Stodolska and colleagues (2020) emphasized barriers to participate for undocumented Latinx immigrants such as not being able to apply for recreational programs' (i.e., soccer) scholarships for their children because of a proof of residency requirement. Other times required credit card payments stopped participants from enrolling since most were paid in cash. Above all, individuals reported being wary of governmental institutions due to the fear that bringing attention to themselves would lead to deportation (Stodolska et al., 2020).

However, history and upbringing, which inexplicably include generational and citizenship status, also serve as a source of empowerment. In a sample of 16 Latinx first-generation NCAA Division 1 athletes, many viewed their college athlete status as a privilege that they enjoyed because of their families' past sacrifices to move to the U.S. Knowing their generation status only reaffirmed their motivation to succeed as athletes and scholars (Grafnetterova & Banda, 2021a), and this may hold true for other generations as well.

Academic Factors

Academic performance as measured by grade point average (GPA) and course requirements may affect participation rates in sports. The NCAA has academic standards of eligibility for college-bound student athletes and continuing requirements for returning athletes that vary across divisions. For example, Division 1 continuing athletes must complete a certain percentage of their coursework for degree completion by the end of their 2nd, 3rd, and 4th years. In addition, they must earn at least six credit hours per term and meet their institution's minimum GPA requirements (NCAA, 2021). Other systems in place, such as the Academic Progress Rate (APR) also track student athlete eligibility

and retention rates that can result in scholarship and practice time sanctions if a score below 930 is attained (NCAA, 2015). Although sport requirements are in the best interest of athletes to maintain a balance between academia and athletics, they may hinder participation rates for athletes unable to meet them.

Most studies refer to the positive benefits of sport participation being associated with a higher GPA and involvement in class. Other studies specific to Latinx athletes have studied predictors for Latinx athletes' college GPA (Ortega, 2021a). However, past literature has not analyzed how GPA and academic performance may hinder sport participation and how this may affect certain races/ethnicities, such as Latinx athletes, disproportionately. Ridpath (2010) investigated academic service use for athletes in a sample of NCAA Division 1 athletes and found that minority athletes utilized these services at higher rates than their White peers. Minority athletes also viewed these services as necessary not only for their ability to persist and graduate, but also, for them to maintain their athletic eligibility as required by the APR system. These findings may suggest the need to analyze academic performance measures in more depth to understand their impact on athletes' participation.

Psychosocial-cultural Factors

Discrimination

Discrimination refers to the "unfair or prejudicial treatment of people and groups based on characteristics such as race, gender, age or sexual orientation" (APA, 2019). A common way to discriminate against others is by using racial microagressions, or brief, subtle insults that may or may not be intentional but have the effect of denigrating people of color (Sue et al., 2007). Discrimination has been linked to poor outcomes in various

areas such as mental health (Cokley et al., 2017), college satisfaction (Durkee et al., 2021), and self-esteem (Nadal et al., 2014) in college samples. In sports, athletes experience discrimination and negative stereotypes that lead to their perception of being less intelligent and more committed to sports than academia (Comeaux, 2011). Nonetheless, student athlete status proves to be beneficial for certain racial/ethnic minorities in terms of mental health outcomes (Tran, 2020b).

Exercise has been identified as a possible protector against the negative association of discrimination and poor mental health as expressed by depression, anxiety, and disordered eating concerns in a sample of college level racial/ethnic minority student athletes (REMSA; Tran 2021a). While exercise is a possible protector, there is a lack of literature that addresses the relation between discrimination and sport/exercise participation rates within the Latinx population specifically. Some related work has focused on how discrimination is a constraint for Latinx men in participating in leisure activities, which include sports. Sharaievska and colleagues (2010) found that Latinx men between the age of 21 and 40 years from two urban neighborhoods in Chicago stated that discrimination against them had led them to either avoid the activities or start attending in larger groups. However, the majority of work analyzing the relation between discrimination and sport/exercise participation rates has focused on racism as experienced by college student athletes who identify as Black and the implications that has in their college experience and well-being (Melendez, 2008; Simiyu, 2012).

McGovern's (2021b) results from interviews with college Latinx women athletes suggest that skin tone is an added layer that complicates discrimination experienced by Latinxs. Light skinned participants reported that they felt integrated to their sports team

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because they shared the same olive skin tone. Because they were white passing, nobody knew they were Latinx unless they saw their last name. In contrast, darker skinned participants recounted instances of discrimination from both audience members and coaches when playing sports commonly overrepresented by White athletes. One participant felt that her coach was distant and punished her errors more severely in comparison to her White peers, which eventually led to her leaving the team. Not only do these findings demonstrate how discrimination ultimately affects participation rates for Latinx athletes, but also, point to the need to apply frameworks such as the Centering Racial and Ethnic Identity for Latinxs (C-REIL; Adames et al., 2021). This framework acknowledges how skin tone interacts with race, context, and history to inform Latinx experiences/identity when analyzing concepts such as discrimination.

It is important that discrimination is added to models analyzing participation patterns for Latinxs in sports and exercise because unfortunately, it is a daily reality for most that shapes how they move in society. Recent discrimination can be detrimental to one's self-perception; it is a reality faced by minority college athletes that predicts global self-worth, scholastic competence, and intellectual ability (Strehlow et al., 2021). Moreover, discrimination leads to feeling unwelcomed in sports, which ultimately ends in lower participation rates or Latinxs are likely to cluster in sports where they are perceived to fit (Bopp et al., 2017).

Sense of Belonging

Sense of belonging can be measured differently depending on the context. It can refer to the sense of connection with other athletes, coaches, or one's institution, but overall, all these different points lead to a sense of connection to a sport (Grafnetterova &

Banda, 2021b; McGovern, 2021b). For example, a Latinx woman athlete from McGovern's study (2021b) disclosed that having a connection with her coach created a sense of belonging. Meanwhile not creating a connection with a coach led to feelings of discomfort in being one of few women of color in swim meets. A sense of belonging in the sport was also created when other Latinx women were seen to excel in the sport (McGovern, 2021b).

In addition, bonds forged with teammates was another avenue to create a sense of belonging. As one first-generation, Latinx college athlete explained, their teammates served the same purpose that ethnic/nationality-based clubs serve for non-athletes: they create a home away from home and assert their belonging to campus (Grafnetterova & Banda, 2021b). Thus, creating a sense of belonging to their institution may also create a sense of belonging in their sport. Overall, Latinxs' support systems and their significance in shaping their athletic participation are acknowledged through the inclusion of sense of belonging in research.

Psychological Factors

Based on a diverse, national college athlete sample across a five-year span (2010-2015), mental health rates for college athletes are stagnant, not worsening but not improving either (Tran, 2021b). It is important that psychological factors, such as depression, anxiety, and positive mental health are accounted for as predictors of participation rates because mental health problems are a consistent part of athlete's lives that can affect their overall functioning including their participation.

Depression. According to results from the National Survey on Drug Use and Health (SAMHSA, 2018), rates of major depressive episodes for Latinx/Hispanic people

have increased between 2015 and 2018 across many developmental stages. More specifically, rates of depression for Latinx athletes fell between 20-30% (Tran, 2021b). Depression may also afflict athletes differently based on their gender; female and freshmen athletes are more likely to experience symptoms of depressions (Yang et al., 2007).

Another study found that low sport participation in a sample of urban, predominantly Latinx youth was associated with more symptoms of depression (Matta et al., 2021). In addition, Matta and colleagues (2021) suggest that sports participation might protect Latinx youth against depression symptoms. Although the influence of sport participation on symptoms of depression in Latinxs has been studied, the reverse is not true, which is surprising considering that dealing with depression is linked to loss of pleasure, social isolation, and withdrawal from activities. This study addresses this gap by including psychological factors, such as depression, as predictors of sport participation.

Anxiety. Anxiety rates from 2010-2015 were relatively high among a diverse sample of college athletes, with over a third of Hispanic/Latinx student athletes reporting anxiety. Student athlete status benefitted White, Black, and Multiracial student athletes who presented fewer anxiety symptoms in comparison to their non-athlete counterparts. However, Hispanic/Latinx athletes benefited from this athlete status to a lesser extent than their peers (Tran, 2021b), which suggests that the relationship between Latinx athletes and anxiety might be unique and worth further investigating. Given the high rates of anxiety in Latinx student athletes, living with anxiety is common for many so its relationship with participation rates should be better understood.

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Positive Mental Health. A positive psychology perspective approaches mental health problems from a strengths-based stance that considers the positive subjective experiences and traits of individuals instead of solely honing on deficits (Seligman & Csikszentmihalyi, 2000). The purpose of including positive mental health as a predictor of sport/exercise participation is to maintain a positive psychology perspective. Maintaining this perspective acknowledges the fullness of Latinxs' lives, that they may hold strengths, experiences, and perceptions that work in their favor. Including a strengths-based perspective is often overlooked when considering minorities so it is important to also begin addressing what is working to increase their participation rates.

CHAPTER 3

PRESENT STUDY

Operating within the framework of a public health model that emphasizes the prevention of health concerns through the identification of risk and protective factors, this study approaches the health disparities Latinxs face from a strength-based stance through the promotion of sport and exercise participation. The aim is to be inclusive of the Latinx population by understanding the factors that can better support and encourage their participation in sports and exercise. Past literature has demonstrated evidence for demographic and academic factors impacting participation rates. However, with the exception of McGovern (2021a), no studies have analyzed various macro and micro-level factors that affect exercise and sport involvement with the Latinx population by using gender models. This study expands upon the work of McGovern (2021a) by focusing on a young adult population, adding a mental health perspective, and analyzing psychosocial-cultural factors (i.e., discrimination, sense of belonging, depression, anxiety, and positive mental health) independent of other established predictors (i.e., demographic and academic predictors). Overall, this study brings a unique perspective in conceptualizing sports/exercise participation in a way that includes other dimensions of Latinxs' lives such as experiences of discrimination, sense of belonging, and psychological well-being.

More specifically, this study investigates the relevance of psychosocial-cultural factors in sport and exercise participation through the following hypotheses:

1. Psychosocial-cultural factors (i.e., discrimination, sense of belonging, depression, anxiety, and positive mental health) predict variance in sport participation even

when accounting for demographic (i.e., gender, financial hardship, and US-born status) and academic (i.e., grade point average, academic persistence) variables.

2. Psychosocial-cultural factors (i.e., discrimination, sense of belonging, depression, anxiety, and positive mental health) predict variance in exercise participation even when accounting for demographic (i.e., gender, financial hardship, and US-born status) and academic (i.e., grade point average, academic persistence) variables.

Additionally, while some research suggests a difference in factors affecting exercise and sport participation for Latinxs due to their gender, other research claims that there may be recent cultural shifts that remove that difference. This study thus aims to take an exploratory approach to further examine if there are different significant predictor (demographic, academic, and psychosocial-cultural) patterns for (1) sport and (2) exercise involvement for Latinx women and Latinx men separately by using gender models.

CHAPTER 4

METHOD

Sample

Cross-sectional data were used from the Healthy Minds Study (HMS), an annual online survey randomly administered to undergraduate and graduate students nationwide. The data are publicly available and pertain to mental health, service use, and related issues. All students from participating institutions completed the standard modules (i.e., Demographics, Mental Health Status, Mental Health Service Utilization/Help-Seeking) and were randomly assigned to two out of 12 elective modules. Elective modules consist of other mental health related areas of interest such as Mental Health Climate and Overall Health. Since participants are randomly assigned to elective modules, sample sizes vary across measures from the elective modules. The secondary analyses conducted in this study were approved by the Arizona State University Institutional Review Board.

The study sample was drawn from cohort years 2016 through 2020 and included participants who identified as Latinx college students. Participants who were not assigned to the elective modules (e.g., Mental Health Climate) that corresponded to variables of interest in the study (e.g., discrimination) were excluded. The full sample of Latinx college students who participated in the HMS study between 2016 to 2020 was 29,501. To gather the athlete sample, participants who did not respond to the discrimination variable (elective module: Mental Health Climate) were excluded, leaving a remainder of 9,463 participants (8,394 non-athletes; 1,069 athletes). Entries with non-binary gender identifications (e.g., gender queer/gender non-conforming) were then excluded as they made up approximately 3% of the sample. The entries were excluded from the analyses

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due to the drastically different sample sizes. The remaining total of participants were then 9,171 (8,114 non-athletes and 1,057 athletes). The sample was further reduced by removing entries with missing case entries for any of the variables of interest leading to an analytic sample of 7,129 (6,303 non-athletes and 826 athletes). See Table 1 for the study variable distribution of this analytic sample.

To gather the exercise sample, an additional inclusion criterion was applied: participants reported exercising in the last 30 days. The full sample of Latinx college students (29,501) was then reduced to 15,597 participants (5,803 irregular exercisers and 9,794 regular exercisers) after applying the additional inclusion criterion. Participants who were not assigned to the discrimination variable (elective module: Mental Health Climate) were then excluded, leaving a remainder of 5,187 participants (1,904 irregular exercisers and 3,283 regular exercisers). Upon further analysis, non-binary gender identifications (e.g., gender queer/gender non-conforming) made up a small portion of the sample (2.5%), so those entries were excluded from the analyses due to the drastically different sample sizes. The remaining total of exercise participants was then 5,055 participants (1,851 irregular exercisers and 3,204 regular exercisers). This sample was further reduced by removing entries with missing case entries for any of the variables of interest, leading to an analytic sample of 3,940 Latinx exercise participants (1,410 irregular exercisers and 2,530 regular exercisers). Table 1 presents the distribution of variables of this analytic sample.

Measures

Dependent Variables

Exercise Participation. Exercise, part of an elective module, was captured through the question, "In the past 30 days, about how many hours per week on average did you spend exercising? (Include any exercise of moderate or higher intensity, where "moderate intensity" would be roughly equivalent to brisk walking or bicycling)." Response options included *Less than 1 hour* (1), *2-3 hours* (2), *3-4 hours* (3), or *5 or more hours* (4). For this study, responses were combined into a dichotomous variable: **infrequent exercise** (less than one hour/60 minutes) and **frequent exercise** (2-3 hours/120-180 minutes, 3-4 hours/180-240 minutes, 5 or more hours/300+ minutes). The variable was recoded this way to be in as much as possible accordance with the American Heart Association's (2018) recommendation of 150 minutes of moderate-intensity aerobic activity per week for adults. In the original variable, the second option was presented as an interval of time (i.e., 2-3 hours/120-180 minutes) so it was not possible to decipher which participants met the recommended 150 minutes of moderate-intensity aerobic activity. Therefore, participants who selected 2-3 hours were recoded as part of the frequent exercise group for this study.

Sport Participation. For this study, sport participation was operationalized into a dichotomous variable that captured involvement in any competitive and structured sport. Sport participation was assessed with the following question, "What activities do you currently participate in at your school? (Select all that apply)." If participants selected "Athletics (club), Athletics (intercollegiate varsity), or Athletics (intramural)," they were coded as **athletes**, and if they did not select any athletic activities, they were coded as a **non-athletes**.

Demographic Variables

Participants answered demographic questions that assessed basic information about themselves such as their age, gender, financial hardship, and US-born status.

Gender. Gender was assessed with the question, "What is your gender identity?" and response options were based on guidance from the Trevor Project, an organization that focuses on suicide prevention and crisis intervention for LGBTQ (lesbian, gay, bisexual, transgender, queer, and questioning) individuals. The response options included *Male*, *Female*, *Trans male/Trans man*, *Trans female/Trans woman*, *Genderqueer/Gender non-conforming*, and a *free response* option. This variable was recoded into a dichotomous variable that accounted for *man/masculine* (0) and *woman/feminine* (1) since all remaining response options accounted for approximately 2.5% - 3% of participants. The responses were changed from "*Male*" and "*Female*" to "*Man/Masculine*" and "*Woman/Feminine*" in the recoded variable to be in more agreement with an understanding of gender as a social construct that helps explain an individual's world and experiences rather than sex (e.g., male, female), which is biologically based and assigned at birth (Trevor Project, 2021).

Financial hardship. Although social economic status was not measured within this study, financial stress was used as an indicator for financial hardship. Financial hardship captures the deprivation experienced due to not having financial resources to meet one's needs (Frankham et al., 2020). Financial stress can thus be an indicator of the deprivation experienced when undergoing financial hardship. Participants were asked, "How would you describe your financial situation right now?," and the response options ranged from *Always stressful* (5), *Sometimes stressful* (3), and *Never stressful* (1). A

higher score indicated greater stress experienced due to their financial situation. Similar to other studies measuring financial stress (e.g., Oh et al., 2021), financial hardship was treated as a continuous variable in regression analyses. The question measures financial stress and originates from the Center for Collegiate Mental Health's (CCMH) Standardized Data Set's (SDS) question 57. The CCMH is a practice-research network that publishes an Annual Report which includes SDS data that are used at college counseling centers (CCMH, 2022). These data are also publicly available and used in publications such as the work of Jones and colleagues (2018), which analyzed the role of financial stress on college students' anxiety using the single item indicator.

US-born Status. US-born status was used instead of US citizenship status because US citizenship status was not inquired in all the survey years. Only surveys from 2019 and 2020 capture citizenship status by inquiring about identification as a permanent/temporary resident, visa holder, deferred action for childhood arrivals (DACA), refugee, or undocumented immigrant. In efforts to maintain a consistent status inquiry across all survey years, international student status was used as a proxy for US-born status (i.e., "Are you an international student?"). Participants responded *No* (0) or *Yes* (1) so US-born status was used as a dichotomous variable. The proxy used was adapted from question 32 from the CCMH's SDS (CCMH, 2022).

Academic Variables

Grade point average (GPA). The Center for Collegiate Mental Health's (CCMH) SDS question 46 (i.e., "What is your current overall GPA?") was used to capture grade point average as a measurement of academic performance. Responses ranged from *A+* (8) to *D+ or below* (1) and there was a *no grade or don't know* option

that was coded as missing data. A higher score indicated a higher GPA. Other studies

such as Tran (2021a) have used the same question or a similar question (Beron &

Piquero, 2016) to capture academic performance in college athlete samples.

Academic persistence. Participants reported their agreement with their

confidence in completing their degree regardless of the obstacles they may encounter.

Participants were asked, "How much do you agree with the following statement?: I am

confident that I will be able to finish my degree no matter what challenges I may face."

Response options were based on a 6-point Likert scale (*Strongly Agree* (6), *Somewhat*

agree (3), *Strongly disagree* (1)). A higher score aligned with greater agreement with

having the confidence to complete their degree. The distribution for academic persistence

was skewed towards *Strongly agree* and *agree*. Following the example of Freibott and

colleagues (2022), the variable was dichotomized into *Neutral/Disagree* (which captured

responses: somewhat agree, somewhat disagree, disagree, strongly disagree) and *Agree*

(which captured responses: strongly agree, agree) to address the skewness. Although it is

unclear where this question was taken from, academic persistence has been measured

similarly in the Academic and Intellectual Development subscale from the

Persistence/Voluntary Dropout Decision Scale (Pascarella & Terenzini, 1980). This

measure has yielded an alpha of .71 in a sample of Latinx college students (Bordes-Edgar

et al., 2011).

Psychosocial-cultural Variables

Discrimination. As a reminder, the following measure was part of the elective

modules so not all participants answered this question. Discriminatory experiences were

captured with a single item indicator, "In the past 12 months, how many times have you

been treated unfairly because of your race, ethnicity, gender, sexual orientation, or cultural background?" Response options included *Never* (1), *Once in a while* (2), *Sometimes* (3), *A lot* (4), *Most of the time* (5), and *Almost all the time* (6). Higher scores are consistent with more frequent rates of discrimination experienced. Discrimination was entered as a continuous variable like other studies have done (e.g., Tran et al., 2010). Although it is unclear from which scale this item was incorporated, this item resembles how the Everyday Discrimination Scale (EDS; Williams et al., 1997) measures discrimination. The EDS is a commonly used measure to assess discrimination and has been used in Latinx college samples (Serpas, 2021). The reported alpha in the study by Serpas (2021) was excellent ($\alpha = .90$).

Sense of Belonging. Sense of belonging was assessed with the following single item adapted from the Perceived Cohesion Scale (PCS; Bollen & Hoyle, 1990), "How much do you agree with the following statement?: I see myself as a part of the campus community." Participants rated this statement on a 6-point Likert scale ranging from *Strongly agree* (6), *Somewhat agree* (3), and *Strongly disagree* (1). A higher score is indicative of more agreement with a sense of belonging to the campus community. Like past studies (Backhaus et al., 2021), sense of belonging was treated as a continuous variable in the regression models. Further, adapted items from the PCS have yielded a strong Cronbach's alphas of .89 in a Latinx sample (Delgado-Guerrero & Gloria, 2013).

Depression. Depression symptomology was assessed using the Patient Health Questionnaire-9 (PHQ-9; Spitzer et al., 1999), a 9-item self-report screening instrument utilized by health care professionals. The items in the instrument are consistent with the diagnostic criteria of the DSM-V for major depressive disorder (MDD). Participants rated

the nine items by reflecting on the number of days they had been bothered by the items presented over the past two weeks. Sample items include: "Little interest or pleasure in doing things" and "Feeling tired or having little energy" (Spitzer et al., 2014). All items are positively phrased and scored on a 4-point Likert scale (0 = *Not at all* to 3 = *Nearly every day*). The items are added to produce a score range from 0-21, with a higher sum being consistent with greater levels of depression. Depression was thus entered as a continuous variable in the analysis.

The PHQ-9 holds a strong internal reliability and good validity. Keum and colleagues (2018) reported that the PHQ-9 yielded a Cronbach's α that ranged between .86 - .93 across sample groups in their racially/ethnically representative sample of college students. The PHQ-9 negatively correlated with well-being scores from the Mental Health Continuum Short Form (MHC-SF) (Keum et al., 2018). In the current study, Cronbach's alpha was reliable (α = .89).

Anxiety. Symptoms of generalized anxiety were measured using the 7-item Generalized Anxiety Disorder Scale (GAD-7; Spitzer et al., 2006), a self-report scale designed to screen for Generalized Anxiety Disorder and the severity of the anxiety symptoms. Participants rated seven items that questioned how often they were bothered by problems such as "Being so restless that it is hard to sit still" and "Feeling nervous, anxious or on edge" (Spitzer et al., 2006) over the last two weeks. Responses are assessed on a 4-point Likert scale (0 = *Not at all* to 3 = *Nearly every day*), and greater sum of scores indicate greater levels of anxiety. Anxiety was thus entered as a continuous variable in the analysis.

Internal reliability for the GAD-7 was strong, Cronbach's alpha equaled to .92 in sample of college Latinx students (Badiee & Andrade, 2019). The GAD-7 also positively correlated with two widely used anxiety scales: the Beck Anxiety Inventory ($r = .72$) and the anxiety subscale from the Symptom Checklist-90 ($r = .74$; Spitzer et al., 2006). In the current study, reliability was strong ($\alpha = .91$).

Positive Mental Health. The sum scores from the Flourishing Scale (FS; Diener et al., 2009), an 8-item measure that assesses self-perceived social and psychological functioning in relationships, feelings of competence, and purpose, were used to measure positive mental health. Participants responded to each positively phrased item on a scale using a 7-point Likert scale (1= *Strongly disagree*, 4 = *Neither agree nor disagree*, and 7 = *Strongly agree*), and higher scores indicated a more positive view of the self in areas of social-psychological functioning. Positive mental health was thus entered as a continuous variable in the analysis. Sample items include, "My social relationships are supportive and rewarding." and "I lead a purposeful and meaningful life." The FS yielded a Cronbach's α of .87 in a sample of 689 college students from six different institutions in the U.S. (Diener et al., 2010) and an alpha of .95 in a sample of undocumented Latinx immigrants (Cobb et al., 2019). Moreover, perceived discrimination was negatively associated with the FS (Cobb et al., 2019). In addition, the FS correlated substantially with other commonly used well-being measures in the field such as the Ryan and Deci's Basic Need Satisfaction Scale (BNS) and the Ryff Scales of Psychological Well-being. The Flourishing Scale correlated more highly with the competence items of the BNS and the mastery items from the Ryff scale (Diener et al., 2010). In the current study, Cronbach's alpha was strong ($\alpha = .91$).

Analytic Plan

The Statistical Package for the Social Sciences (SPSS) version 27 was used to conduct secondary analyses with data from the Healthy Minds Study. To address the first and second hypotheses, hierarchal binary logistic regressions were conducted. Binary logistic regressions are statistical analyses that allow for the prediction of how multiple factors affect the probability of a dichotomous dependent variable from occurring. In this case, hierarchal refers to the method in which the variables were entered, meaning that to isolate the variance in sport and exercise participation accounted for by psychosocial-cultural factors, demographic and academic variables were entered into the model first, followed by psychosocial-cultural factors entered in a second block. The resulting chi-squared statistic (χ^2) and its significance ($\alpha < .05$) then speak to whether the model predicts sport/exercise participation or not. The reported Nagelkerke R^2 statistic acts as a pseudo-R^2 that speaks to "the proportion of unaccounted for variance that is reduced by adding variables to the model" (Newsom, 2021, p. 5). Thus, the larger the Nagelkerke R^2 statistic is, the more approximate variation a model explains, and the statistic ranges up to one (Newsom 2021). In addition, classification tables assess the performance of the model by comparing the observed outcomes (i.e., sport/exercise participation) with their predicted outcomes. The higher the classification accuracy percentage (ranges up to 100%), the better the model performs in predicting the outcome variable (i.e., sport/exercise participation). The main results from the logistic regression are reported in odds ratios (OR), which account for the predicted change in odds of the dependent variable (i.e., sport/exercise participation) from occurring for a unit increase in the predictor. Odd ratios that are greater than 1 indicate that there is an increased probability

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of the outcome variable occurring while values lower than 1 mark a decreased probability (CFDR, 2006).

To assess the third objective (i.e., explore differences in predictors using gender models for Latinx men and Latinx women separately), binary logistic regressions were conducted. The difference was that in these regressions, gender was removed from the demographic variables and was used to create gender models where the predictors were included all at once for Latinx women and Latinx men separately. To explore the possible differences, the ORs for the individual predictors were compared across models for Latinx men and Latinx women.

Table 1. Descriptive Statistics

Variable	Athlete Sample (*N* = 7129)	Exercise Sample (*N* = 3940)
Athlete Status, *M* (*SD*)	.12 (.32)	--
Non-athlete, %	88.4%	--
	M = 25.9%, W = 74.1%	
Athlete, %	11.6%	--
	M = 50.7%, W = 49.3%	
Exercise Participation, *M* (*SD*)	--	.64 (.48)
Infrequent, %	--	35.8%
		M = 20.1%, W = 79.9%
Frequent, %	--	64.2%
		M = 27.3%, W = 72.7%
Gender		
Men, %	28.8%	27.3%
Women, %	71.2%	72.7%
Financial hardship *M* (*SD*)	3.45 (1.068)	3.47 (1.08)
US-born, %	92%	92.9%
Grade point average, *M* (*SD*)	6.30 (1.98)	6.21 (2.07)
Academic Persistence		
Neutral/Disagree, %	19.1%	20.6%
Agree, %	80.9%	79.4%
Discrimination, *M* (*SD*)	1.73 (0.97)	1.71 (0.98)
Sense of belonging, *M* (*SD*)	3.84 (1.38)	3.82 (1.40)
Depression, *M* (*SD*)	8.81 (6.21)	9.16 (6.33)
Anxiety, *M* (*SD*)	7.53 (5.71)	7.87 (5.80)
Positive mental health, *M* (*SD*)	43.98 (8.39)	43.71 (8.48)

Note: The abbreviation W stands for women and M stands for Men.

CHAPTER 5

RESULTS

Preliminary Analyses

Athletic Participation

Bivariate correlations via chi-squared and point biserial statistical tests (see Table 2) were conducted to explore preliminary associations between the study variables and athlete participation among Latinx women and men. Results suggest that financial hardship and US-born status were only correlated with athletic participation for Latinx women. A weak, negative association was found between financial hardship and athletic participation, meaning that reporting less financial stress was associated with holding an athlete status. Further, identifying as US-born was linked with reporting an athlete status, but this was a weak association. In addition, GPA was negatively associated with athletic participation for Latinx men only indicating that a lower GPA was linked to reporting an athlete status, and this association was weak. Further, academic persistence, sense of belonging, depression, anxiety, and positive mental health were linked to athletic participation for Latinx women and men.

To address group differences among Latinx women and men and the study variables, *t*-tests were conducted and can be referred to in Table 3. Group differences exist across all study variables except for positive mental health, which suggests that Latinx women and men have positive mental health in common.

Exercise Participation

Chi-squared and point biserial statistical tests (see Table 4) were conducted to explore preliminary associations between the study variables and exercise participation

among Latinx women and men. The aim was to begin to uncover associations that were unique to each gender. Most notably, GPA was the only factor correlated with exercise for Latinx women only. GPA was positively linked to exercise, meaning that a higher GPA was related to more frequent exercise, and the magnitude of this relationship was weak. Financial hardship, academic persistence, sense of belonging, depression, anxiety, and positive mental health were associated with exercise participation for Latinx women and men.

t-tests were then conducted to address any group differences among Latinx women and Latinx men and the study variables (see Table 5). Interestingly, there were group differences across all the study variables for Latinx women and men except for sense of belonging and positive mental health. It then appears that sense of belonging and positive mental health may be two factors that Latinx women and men have in common.

Overview

Binary hierarchal logistic regressions were conducted to identify the likelihood that psychosocial-cultural factors predicted variance in sport and exercise participation above the variance explained by demographic and academic variables. Additionally, binary logistic regressions were conducted to explore potential differences in predictors from Latinx men and Latinx women using gender models. Most assumptions: dichotomous dependent variable, at least one independent variable, independence of observations, and absence of multicollinearity were met. Multicollinearity was assessed by confirming that the predictors' VIF values were less than 10 and that the Tolerance values were above 0.1 (Field, 2018). However, the assumption of linearity of the logit was violated by the interaction between the discrimination variable and its log in the

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exercise participant sample. This means that the discrimination variable is not linearly related to the logit of exercise participation. Similarly, linearity of the logit was violated by the interaction between the financial hardship variable and its log in the athlete sample. However, according to Hasan (2020), violations to the assumption of linearity of the logit can be dismissed if the sample size is large enough. We assume that our respective sample sizes for the athlete and exercise participants are large enough to move forward with the analyses.

Sport Participation Models

Although the logistic regression model including demographic, academic, and psychosocial factors was statistically significant in predicting sport involvement among Latinx men and Latinx women, $\chi^2 (10) = 478.703$, $p < .001$, and explained approximately 12.7% (Nagelkerke R^2) of the variance in sport participation, its classification accuracy suggested the ineffectiveness of this model. Prior to the addition of the psychosocial-cultural predictors, the model's overall classification accuracy of sport participation was 88.4%. However, non-athletes were classified 100% of the time correctly while athletes were classified 0% of the time correctly. When the psychosocial-cultural predictors were added ($\chi^2 (5) = 213.185$, $p < .001$), the model approximately explained an additional 5.6% (change in Nagelkerke R^2) of variance in sport participation. This indicates that the first hypothesis was technically supported since psychosocial-cultural factors (i.e., discrimination, sense of belonging, depression, anxiety, and positive mental health) predicted variance in sport participation even when accounting for demographic (i.e., gender, financial hardship, and US-born status) and academic (i.e., grade point average, academic persistence) variables. However, it is important to note that when the

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psychosocial-cultural variables were added, the overall classification percentage remained the same and non-athlete classification accuracy improved by 0.1%. The model for Latinx Women and Latinx Men yielded similar results, so the results were not analyzed further. Thus, although the models were significant and explained some variance in sport participation, their performance in correctly classifying sport participation as evidenced by the classification table results was very poor. Therefore, more in-depth interpretations about the individual predictors, such as the odd ratios, were not done.

Exercise Participation Models

Refer to Table 6 for each predictor (after psychosocial-cultural predictors have been included) affecting the probability that exercise participation will happen in the three models (Both genders, Latinx Women, and Latinx Men).

Model 1 – Both Genders

The logistic regression model including demographic, academic, and psychosocial-cultural factors was statistically significant in predicting exercise involvement among Latinx men and Latinx women, $\chi^2 (10) = 199.297$, $p < .001$. This model explained approximately 6.8% (Nagelkerke R^2) of the variance in exercise participation. Prior to the addition of psychosocial-cultural variables, the model overall correctly classified exercise frequency 64.7% of the time. Compared to the classification accuracy for irregular exercise participation (9.1%), the model had a higher accuracy in correctly classifying frequent exercise participation (95.7%). After psychosocial-cultural factors were included ($\chi^2 (5) = 76.030$, $p < .001$), the model approximately explained an additional 2.6% (change in Nagelkerke R^2) of variance in exercise participation. This

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indicates that the second hypothesis was supported since psychosocial-cultural factors (i.e., discrimination, sense of belonging, depression, anxiety, and positive mental health) predicted variance in exercise participation even when accounting for demographic (i.e., gender, financial hardship, and US-born status) and academic (i.e., grade point average, academic persistence) variables. Moreover, when psychosocial-cultural factors were added to the model, the overall classification accuracy improved by 0.5%. Irregular exercise classification increased 8.1%, totaling a 17.2% accuracy and regular exercise classification totaled 91.6%. Although the model's accuracy classification is not compelling (65.2%), the increase change in irregular exercise classification (8.1%) may suggest the added importance of including psychosocial-cultural factors.

More specifically, the individual predictors that were statistically significant were gender, financial hardship, discrimination, sense of belonging, and positive mental health. Compared to men, women were less likely to exercise frequently. The more financial distress an individual experiences, the less likely they are to exercise frequently. In terms of psychosocial-cultural predictors, only discrimination, sense of belonging, and positive mental health were significant predictors of exercise participation. Individuals who experienced discrimination more often were more likely to exercise frequently. Experiencing higher levels of sense of belonging to one's campus community predicted frequent exercise participation. Lastly, individuals who reported a higher positive mental health were more likely to report exercising frequently.

Model 2 – Latinx Women

The second model examined if all predictors (demographic, academic, and psychosocial-cultural) predicted variance in exercise participation for the Latinx Women

model to later draw comparisons with the results from the third model, Latinx Men. As previously indicated, gender was removed from the demographic predictors and the sample was restricted to women only before conducting a simple binary logistic regression.

The model was statistically significant, $\chi^2(9) = 101.667$, $p < .001$, and explained 4.7% (Nagelkerke R^2) of the variance in exercise participation for women. The model's overall classification accuracy was 61.7% of cases. The classification accuracy rate for irregular exercise was 18.6% while the accuracy rate for regular exercise decreased to 89.6%, which suggests that model has a poor performance in classifying exercise participation correctly.

Further, financial hardship and grade point average emerged as the only significant demographic and academic predictors respectively. The more financial distress experienced, the less likely a woman is to report exercising frequently. The higher GPA reported, the more likely a woman is to exercise frequently. Most psychosocial-cultural predictors (i.e., discrimination, sense of belonging, and positive mental health) were significant except for anxiety and depression. Women who experienced discrimination more frequently were more likely to report exercising frequently. Secondly, women who reported higher levels of sense of belonging were more likely to exercise frequently. In addition, women who reported a higher positive mental health had greater odds of exercising frequently.

Model 3 – Latinx Men

The third model examined if demographic, academic, and psychosocial-cultural factors explained variance in exercise participation for Latinx men only. As previously

indicated, gender was removed from the demographic predictors and the sample was then restricted to men only.

The model was statistically significant, $\chi^2 (9) = 45.633$, $p < .001$, and explained 6.1% (Nagelkerke R^2) of the variance in exercise participation for men. The model's overall classification accuracy was 74.1% with a classification accuracy rate for irregular exercise of 5.3% and a 98.7% classification accuracy for regular exercise. Thus, the model has a poor performance in correctly classifying exercise participation.

More precisely, for men, there were no significant demographic and academic predictors. Alternatively, positive mental health and sense of belonging emerged as the only psychosocial-cultural predictors of frequent exercise. Men who reported more positive mental health were more likely to exercise frequently. Furthermore, men who experienced higher levels of sense of belonging were more likely to exercise frequently.

Table 2. Athletic Participation Preliminary Analyses: Gendered Associations

	Latinx Women		Latinx Men	
	Chi²	*Point Biserial*	*Chi²*	*Point Biserial*
Financial hardship		-.10***		-.03
US-born status	9.18**		1.76	
Grade point average		.00		-.05*
Academic Persistence	6.07*		10.91***	
Discrimination		-.01		.02
Sense of belonging		.15**		.21***
Depression		-.07***		-.10***
Anxiety		-.07***		-.12***
Positive mental health		.07***		.08***

Note: ***p < 0.001, **p < 0.01, *p < 0.05

Table 3. Athletic Participation Preliminary Analyses: Gender Group Differences

	Men		Women		$t(7127)$	p	Cohen's d
	M	*SD*	*M*	*SD*			
Financial hardship	3.27	1.09	3.52	1.05	-9.11	<.001	-.24
US-born status	.89	.31	.93	.25	-6.17	<.001	-.16
Grade point average	6.12	2.02	6.37	1.95	-4.82	<.001	-.13
Academic Persistence	.84	.37	.80	.40	3.79	<.001	.10
Discrimination	1.64	.95	1.77	.97	-5.14	<.001	-.14
Sense of belonging	3.90	1.41	3.82	1.37	2.04	.041	.05
Depression	0.76	5.91	9.31	6.25	-10.85	<.001	-.29
Anxiety	0.60	5.29	8.16	5.75	-15.00	<.001	-.39
Positive mental health	44.26	8.56	43.86	8.31	1.83	.068	.05

Table 4. Exercise Participation Preliminary Analyses: Gendered Associations

	Latinx Women		Latinx Men	
	Chi²	*Point Biserial*	*Chi²*	*Point Biserial*
Financial hardship		-.09**		-.07*
US-born status	3.18		0.21	
Grade point average		.08**		.03
Academic Persistence	27.85***		9.68**	
Discrimination		.010		-.02
Sense of belonging		.10**		.13**
Depression		-.14**		-.15**
Anxiety		-.12**		-.15**
Positive mental health		.14**		.18**

Note: ***p < 0.001, **p < 0.01, *p < 0.05

Table 5. Exercise Participation Preliminary Analyses: Gender Group Differences

	Men		Women		t(3938)	p	Cohen's d
	M	SD	M	SD			
Financial hardship	3.29	1.09	3.54	.06	-6.44	<.001	-.23
US-born status	.91	.29	.94	.24	-3.65	<.001	-.13
Grade point average	6.02	2.11	6.28	2.05	-3.46	<.001	-.12
Academic Persistence	.82	.38	.78	.41	2.85	.004	.10
Discrimination	1.63	.95	1.74	.98	-3.09	.002	-.11
Sense of belonging	3.89	1.42	3.80	1.39	1.83	.068	.07
Depression	0.78	6.10	9.66	6.34	-8.14	<.001	-.29
Anxiety	0.63	5.41	8.48	5.83	-10.94	<.001	-.39
Positive mental health	43.86	8.67	43.65	8.40	.67	.503	.02

Table 6. Odds Ratios (OR) of Exercise Participation Predictors

	Model 1 Both Genders	Model 2 Latinx Women	Model 3 Latinx Men
Demographic			
Gender	.59***	—	—
Financial hardship	.93*	.92*	.98
US-born status	.92	.88	1.01
Academic			
Grade point average	1.03	1.04*	.98
Academic Persistence	1.17	1.18	1.17
Psychosocial-cultural			
Discrimination	1.11**	1.12**	1.06
Sense of belonging	1.10***	1.08**	1.13*
Depression	.99	.99	1.00
Anxiety	.98	.99	.97
Positive mental health	1.02***	1.02**	1.03*

Note: ***p < 0.001, **p < 0.01, *p < 0.05

CHAPTER 6

DISCUSSION

The present study informs our understanding to better support Latinxs' sport and exercise participation during their young adulthood years. Previous research has addressed microlevel and macrolevel factors that impact individuals' sport and exercise participation but only McGovern (2021a) addressed multiple microlevel and macrolevel factors simultaneously that were specific to Latinx girls and boys. This study extends this work by addressing a different developmental stage that has not received as much attention, young adulthood. Unique to this study is also the addition of psychosocial-cultural variables such as discrimination, sense of belonging, depression, anxiety, and positive mental health as predictors of sport and exercise involvement. This study thus aimed to address the added explained variance in (1) sport and (2) exercise participation for Latinx college students by psychosocial-cultural variables when accounting for demographic and academic variables (hypotheses 1 and 2). Following McGovern's (2021a) example, this study explored differences in predictors among Latinx men's and Latinx women's sport and exercise involvement by using gender models (objective 3).

Sport Participation

Consistent with the first hypothesis, psychosocial-cultural variables explained an additional 5.6% variance in sport participation when accounting for demographic and academic variables. This finding indicated the importance of including other factors such as psychological well-being, sociological and cultural factors to holistically address the experiences of Latinx athletes. However, the model's overall effectiveness in correctly predicting sport participation after the inclusion of psychosocial-cultural variables was

very poor. Non-athletes were correctly classified by the model close to 100% of the time while athletes were correctly classified 0.1% of the time. In other words, the model would predict that an individual is a non-athlete close to all the time even when the individual is an athlete. Due to the poor effectiveness of the model, the specific predictors were not analyzed further by interpreting the odds ratios. In addition, the gender models (Latinx Women and Latinx Men) were not analyzed as they yielded similar classification percentages that proved the respective model's ineffectiveness in predicting exercise participation. Future research should aim to use a different recruitment method to attain a targeted athlete sample that is (1) larger in size and (2) similar in size to the non-athlete sample. In this study, the athlete sample was relatively small so a larger sample size may yield significant results that reflect relevant trends within this population. In addition, the athlete to non-athlete sample ratio was one to approximately eight. A difference in sample sizes may account for the model's low classification rate for athletes.

Exercise Participation [Among Both Genders]

In line with the second hypothesis, psychosocial-cultural factors explained an additional 6.8% of variance in exercise participation while accounting for demographic and academic factors. Although the model's overall effectiveness in predicting exercise participation was not compelling, once the psychosocial-cultural variables were added, the model's classification for regular exercise remained in the 90's percentage range while irregular exercise increased by 8.1%. This finding speaks to the relevance of including other dimensions of Latinxs' lives that have been overlooked in previous studies when considering exercise involvement, namely psychosocial-cultural variables. Further understanding the multiple dimensions that promote exercise offers insight to

target health disparities within the Latinx community through health and mental health interventions related to exercise.

When analyzing the individual predictors, the only significant demographic and academic variables were gender and financial hardship. Congruent with previous findings (Im et al., 2010; McGovern, 2021a), these findings confirm that gender differences exist in exercise participation rates in another developmental stage: young adulthood. Understanding that a gender difference gap in participation exists is crucial because it indicates that certain factors may affect women differently. In this study, 1,738 Latinx women or 61% of the total Latinx women sample reported exercising frequently while 1076 Latinx men or 74% of the total Latinx men sample exercised frequently. These descriptive statistics found in Table 1 allude that women continue to be outpaced by men. Thus, it is likely that traditional gender roles/expectations, and lack of media representation (Adams & Tuggle, 2004; McGovern, 2021b; Zambrana & Zoppi, 2002) may continue to impact exercise participation rates for women into young adulthood.

Secondly, experiencing more financial distress predicted being less likely to report frequent exercise, which has been found in other studies as well. Latinx parents have noted that costs are one of the topmost barriers to participate in physical fitness programs (Carter-Pokras et al., 2006) for Latinx girls. In a sample of college students, Nguyen-Michel (2006) found that hassles, which involve financial security concerns, was inversely associated with more exercise participation. Similarly, Greenhalgh and Carney (2014) found that US-born Latinxs from low-income communities were conscious of healthy eating habits and exercise guidelines to combat obesity, but financial constraints were so severe that these guidelines were set aside in efforts to meet their basic needs.

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Thus, for Latinxs, belonging to a lower socioeconomic class where financial hardship is likely more prominent is linked to being less likely to exercise frequently.

In terms of psychosocial-cultural factors, experiencing more sense of belonging, discrimination, and positive mental health predicted frequent exercise participation. Latinxs with greater sense of belonging to a campus community were more likely to exercise frequently. Students may feel more connected to their institution, and thereby feel more inclined, comfortable, and even safe to be physically active. Although sense of belonging has been identified as a protective factor of psychological distress (Sims et al., 2020) and has impacted political behavior (Ocampo, 2016), academic determination (Crisp & Nora, 2010; Pérez, 2017) and sport involvement (Grafnetterova & Banda, 2021b; Lopez, 2021; McGovern, 2021b), research has not directly examined the relationship between sense of belonging to exercise in Latinx communities. More generally, previous research found that retirees who had a stronger desire to belong were more likely to seek physical exercise with others (Bailey & McLaren, 2005). Other research has focused on the opposite relationship by investigating college student's exercise participation predicting their sense of belonging (Soria et al., 2022). Given the positive links associated with sense of belonging across different domains, future research should further explore the relationship between sense of belonging and exercise directly while also accounting for different dimensions of sense of belonging.

Further, experiencing discrimination more often was associated with higher odds of engaging in frequent exercise. Discrimination has been linked to negative mental health outcomes (Cokley et al., 2017) so it is possible that to buffer these negative outcomes, individuals may engage in exercise. Consistent with this reasoning, other

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studies have identified exercise as a possible protector of poor mental health (depression, anxiety, and disordered eating) that is linked to discrimination (Tran, 2021a). Thus, it is possible that exercise may act as a coping mechanism or protective factor against discrimination experienced by Latinxs. Another possible explanation is that exercise is used as an assimilation strategy to fit in. Previous studies have found that sport has facilitated integration to the dominant culture (Alamillo, 2016; Iber et al., 2011) by providing the common ground for different cultural groups to come together (Hatzigeorgiadis et al., 2013; Stodolska & Alexandris, 2004). Thus, it is possible that as Latinxs experience more discrimination, they turn to exercise to provide a similar common ground, as sport does, to fit in with individuals from the dominant culture.

Lastly, Latinxs that reported greater levels of positive mental health were more likely to exercise frequently. This finding suggests the importance of positive social and psychological functioning in relationships and within one's environment, especially with minoritized communities that are often approached from a deficit-based perspective. There is a lack of studies that address the relationship between positive mental health and exercise directly, with one study approaching the concept of positive mental health by focusing on positive affect as marked by enthusiasm, pleasantness, and high energy (Moore et al., 2022). Moore and colleagues (2022) found that individuals who reported positive affect were less likely to engage in insufficient physical activity. Other studies such as Tamminen and colleagues (2020) have focused on the opposite direction for positive mental health and exercise and found that physical inactivity predicted lower positive mental health. Therefore, this study's findings align with similar work that begins to pave the way to analyze psychological factors such as positive mental health

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and its relation to exercise. Future work should continue to explore the impact that positive mental health can have on exercise participation as it includes dimensions beyond positive affect.

Exercise Participation [Gender Models]

To address the third objective and explore gender differences in predictors, gender was removed from the demographic variables and the samples were restricted to Latinx women and Latinx men respectively. Gender models were then conducted to draw comparisons among women and men. In the Latinx Women model, financial hardship, grade point average, sense of belonging, discrimination, and positive mental health emerged as significant factors that predicted exercise involvement. In contrast, in the Latinx Men model, only sense of belonging and positive mental health emerged as significant predictors of exercise. When both women and men experience greater levels of sense of belonging and positive mental health, they are more likely to exercise frequently. This implies that sense of belonging and positive mental health may be common factors across these genders. However, Latinx women seem to uniquely experience financial hardship, grade point average, and discrimination in comparison to Latinx men.

McGovern (2021a) found that financial hardship affected Latinx girls' participation in sports more strongly than it did for boys. Similar to our findings with exercise, it appears that the influence of financial hardship may be stronger and only relevant for women. In this study, the more financial related stress experienced, the lower the odds are that women will exercise frequently. This can be explained in part by families potentially spending more money on women's exercise participation. As it

relates to sports, the Aspen's Project Play recently found that families annually spend more money per sport on girls in comparison to boys, which may contribute to more parental pressure, reduced sport enjoyment, and reduced likelihood of participation (Solomon, 2020). In the past, the reversed trend was found where parents along with communities (Allison, 2019) and schools (Lopez, 2021) invested more in boys' sports than in girls' sports. This trend reversal in more money being invested in girls' sport participation may also be the case for women's exercise participation, thereby also contributing to reduced odds in exercising frequently due to added financial pressure and stress.

Grade point average, also, only emerged as a predictor for women, meaning that as Latinx women report a higher grade point average, they are more likely to exercise. This may reflect the cultural importance placed upon education as an avenue for upward mobility. Lopez (2021) found that 47% of coaches expressed that Latinx parents placed greater importance on their daughter's school performance than on playing sports. For Latinx parents, education was key for their daughters to not struggle as they had so in a way sports were not seen as compatible with their career advancement. Although this finding referred to sport participation, the same concept may apply to exercising for Latinx parents as exercise is also not associated with any direct movement towards monetary compensation or career advancement (Im et al., 2010). Thus, Latinx women may be socialized to focus more on school instead of sports as they progress into later childhood which may continue to be true into young adulthood. This may then indicate that if women are performing well in school (i.e., report higher GPA's) and thus satisfy this cultural expectation, they may be more likely to exercise more frequently.

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Lastly, discrimination may emerge as a significant predictor of exercise for women considering their double jeopardy status, a term coined by Beal (1970) to explain the mistreatment of Black women due to their low status in society as defined by their gender and race. This intersectionality of holding two minoritized identities point towards an overlap of discrimination that is more severe and complex (Buchanan et al., 2008) than what Latinx men experience. Lopez (2019) reported that Latinx girls twelve to fifteen years felt self-conscious of their developing body and their knowledge of sports and the teasing that came along with this. From a young age, women begin to grapple with the complexities of their identity as women and the different mechanisms at play that work to gatekeep sport knowledge. It is also important to note that within the Latinx culture, men hold a higher social position through their patriarchal authority and assigned roles than women (Galanti, 2003) so being a man can be a privilege that may buffer some of the ethnic-based discrimination experienced that women are not granted.

Limitations and Future Directions

Despite the study's several strengths, limitations should be considered when interpreting the study's results. Directionality is one of the most notable limitations because although the psychosocial-cultural variables presented in this study are related to exercise participation, the cause and effect of the variables is not known. It is possible the reversal of the proposed relationships are the actual significant links that are emerging, indicating that exercise predicts the proposed psychosocial-cultural variables rather than vice versa. For example, exercise may promote positive mental health through the release of endorphins or by creating a sense of productivity and flourishment. Exercise may also predict sense of belonging by offering the opportunity to build relationships with others

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through group exercise activities/classes or by offering a common ground to connect over. In addition, exercise may predict discrimination as individuals that engage in exercise may be more vulnerable to instances of discrimination initiated by spectators, peers, and organizations. In sports, racial/ethnic minority athletes often experience discrimination through racial slurs from the public, their own teammates, and opposing players (Lawrence, 2005; Massao & Fasting, 2010; McGovern, 2021b; Ortega, 2021b). More specifically, Lawrence (2005) reported that Black athletes lose opportunities for awards and field positions due to their skin color. Racial discrimination also extends to the endorsement of racial stereotypes that bring attention to the "natural" ability or talent of athletes due to their racial background (Massao & Fasting, 2010). At an institutional level, staff members restricted Black athletes' access to play games in a student center (Cooper & Hawkins, 2014) and academic advisors seemed to rely on race when limiting Black athletes' choice of major and academic exploration (Bimper, 2015). Empirical evidence then suggests that holding an athlete status for racial/ethnic minorities elevates their vulnerability towards discrimination. Potentially, we may see the same effects for exercise participation where exercising elevates individuals' vulnerability to discrimination.

In terms of the gender differences found in the results, it is possible that Latinx women are not experiencing financial hardship, GPA, and discrimination and their impact on their exercise participation uniquely from men. Latinx women may experience exercising differently than Latinx men, which may then impact their financial hardship, GPA, and experiences of discrimination. Further, it is also crucial to consider the

possibility that a bidirectional relationship exists between the variables proposed in this study and exercise where both inform and influence each other.

Regarding the variables used, exercise was not originally gathered in accordance with the American Heart Association's (2018) recommendation of 150 minutes of moderate-intensity aerobic activity per week for adults. One of the response options for exercise was phrased as 2-3 hours/120-180 minutes so it was unknown which participants met the exercise recommendation. For this study, participants who selected 2-3 hours/120-180minutes were coded as frequent exercise participants. Thus, participants who may not have met the exercise recommendation were coded as frequent participants resulting in an overestimation of participants who reported exercising frequently. Moreover, athlete participation was gathered by including club, intramural, and intercollegiate athletes in one variable. This is a limitation as athlete status is experienced differently at each level of participation so the athlete variable is more heterogeneous than it should be. Financial hardship was measured instead of socioeconomic status, which may more accurately and clearly reflect an individual's financial standing. Further, it is important to note that grade point average for freshmen participants in their first semester was counted as missing data since they likely selected the "no grade/don't know" response option. In addition, single-item indicators were used to capture sense of belonging, discrimination, and financial hardship. To capture the multiple dimensions of these constructs future studies should use full scales rather than single-item indicators. Future studies expanding on this work, should then collect exercise participation in line with recommended exercise guidelines, use a socioeconomic status measure, and full scales to measure multidimensional constructs.

Another important consideration is that this study completed a binary gender analysis so future work should be inclusive of other gender identifications. Since it may be difficult to gather a representative sample of non-binary genders, an effort can be made in adding a mixed methods approach where qualitative data are gathered and analyzed as well.

Future studies should consider gathering generational status and citizenship status instead of using US-born status as a proxy since more information can be gathered regarding generational cultural shifts. This study is also cross-sectional so attempting to follow a longitudinal design may be informative regarding the changes in predictors as Latinx participants move through developmental stages. At a minimum, other cross-sectional studies can be pursued to understand if the same results found for young adulthood are consistent in other developmental stages.

In addition, to further address the intersectionality of multiple identities, a model such as the Integrative Model (Coll et al., 1996) could be used in future studies to examine the intersecting dimensions of Latinxs' lives and how they relate to exercise involvement. The Integrative Model acknowledges the importance of race, ethnicity, culture, and social class in dictating a person's place and treatment in society by bringing discrimination, racism, and oppression to the forefront. The addition of psychosocial-cultural factors such as sense of belonging and discrimination align with the mechanisms that the Integrative Model denounces as being detrimental in the promotion or hindering of the development of minoritized individuals. By considering these factors and their potential overlap such as the case with Latinx women who experience discrimination, we are welcoming the experiences that reflect the daily reality Latinx college students

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experience. By considering a more holistic reality, we are more likely to approximate the relevance of the factors in impacting a crucial area of intervention: exercise. The scope of this study was to first identify predictors of sport and exercise involvement, so future work can explore other intersections such as gender and discrimination as guided by the Integrative Model.

Implications

Our findings indicate the continued relevance of established factors such as gender and economic hardship in promoting exercise participation. Understanding the added relevance of psychosocial-cultural predictors in exercise participation, such as sense of belonging, discrimination, and positive mental health, allow us to uncover the contribution of factors that have been overlooked when framing exercise participation for Latinxs.

Financial hardship continues to influence the resources spent (e.g., time, money) in exchange for a healthier lifestyle that includes exercise. An avenue to reduce financial barriers to exercise participation is to remove or reduce fees associated with fitness facility use, classes, or intramural club/sport participation. Colleges have adopted a cash free campus policy where all sporting events along with other campus activities are free to all students, which removes financial barriers towards participation. Additionally, the adoption of a reduced, non-optional student activities fee included within the college billed charges for students improves access as students don't have to account for additional costs. Moreover, despite the many advances made institutionally through Title XI, Latinx men continue to exercise at higher rates than Latinx women, which suggests that certain factors may affect women differently.

Although psychosocial variables explain exercise participation, anxiety and depression may not be as useful as focusing on positive mental health. In other words, we may promote exercise using positive psychology to focus on one's strengths to build healthier relationships with ourselves, others, and our environment rather than focusing on the deficit of motivation and well-being. At an academic administration level, positive psychology courses, workshops, or talks by psychology department faculty can be offered to increase awareness of what positive psychology is and its benefits to mental and physical health outside of the psychology department. The rationale is that increasing the knowledge of positive mental health may spark an interest to focus on human flourishment for the student body, which may then improve rates of exercise participation. At a more individual level, coaches and fitness instructors can capitalize on the students' strengths to promote their physical well-being. For example, a coach or instructor may select a student who displays leadership strengths as a team leader during a physical activity/exercise.

Further, sense of belonging surfaced as significant predictor indicating that more time and resources should be devoted to helping Latinx students feel connected to and integrated to their environment. Administratively, academic institutions can engage in more active efforts to recruit other Latinx athletes, creating a sense of comfort in not being the only or one of few racial/ethnic minority members on a team. More broadly, academic institutions and athletic departments can create events to foster a sense of community within the campus through community gatherings and participation in events that celebrate minoritized identities such as Latinx Heritage Month. Clinicians in university counseling centers can build rapport and inform students of services available

to them through outreach events so students can feel more connected to the resources on-campus. In addition, coaches and fitness instructors can approach students from a multicultural framework by showing interest in their background, intersecting identities, and adjustment to school. This may be taken a step further in understanding that creating a strong bond with a coach/instructor may make the difference between feeling uncomfortable in being one of the few students of color or feeling connected to the team/program. Acknowledging the importance of the student's presence to the team or program may also foster a sense of belonging for the student.

In terms of discrimination, our findings suggest that experiencing more discrimination aligns with frequent exercise participation. It would be irrational and unethical to suggest the promulgation of discrimination against Latinx students to increase their exercise participation. However, by understanding that this finding may suggest exercise as an action that allows students to cope or offer opportunities to fit-in/connect with others, we can resort to the aforementioned suggestions for administrative staff, clinicians, and coaches to increase sense of belonging. If the finding is a result of students using exercise to cope with the effects of discrimination, then a more sensible suggestion would be to suggest ways to better manage discrimination within academic institutions. This may be reflected by academic administration implementing a bystander prevention programming so that the student body has the tools to address instances of discrimination where others are being targeted. Offering an employee-wide, including student workers, microaggression mandatory training module as part of their orientation may also improve discrimination within work settings. In

addition, coaches and fitness instructors' presence in talks that focus on their students' identity and their lived experiences may also demonstrate their allyship to the students.

The model comparisons between Latinx Women and Latinx Men reinforce these suggestion as we find common factors (i.e., sense of belonging and positive mental health) between both genders and differences through additional significant factors for women only (i.e., financial hardship, GPA, discrimination). These findings present an opportunity to amend the messages Latinx women have received from a young age: that they do not belong to the world of sports and exercise. We can begin to shift those messages by building inclusion for Latinx women by addressing specific factors that affect their participation. To address the financial hardship, academic administration can begin the promotion of exercise/sport activities among clubs for Latinx women or sororities at no cost or through university-funded initiatives. Coaches/fitness instructors can be mindful by considering individual costs related to travel, training, and by allocating scholarships to cover training costs to level the playing field between students from lower and higher SES backgrounds.

Furthermore, in terms of GPA, dismantling the belief that education, seen as a tool for upward mobility, and sports/exercise are not compatible is key in allowing Latinx women to learn to care for their education and well-being simultaneously. Athletic staff and administrative staff from financial aid offices are key in the dissemination of information that imparts that women athletes attain scholarship opportunities for higher education through sports or by simply informing of the exercise benefits that can also indirectly benefit academic performance. Academic institutions and coaches can make greater efforts to expose more Latinx women to other Latinx women athletes or fitness

coaches through conversations/presentations or mentorship opportunities in academic settings to normalize the coexistence of sport/exercise and academia. More specifically, athletic staff and instructors can begin to address this parental perceived incongruency by including the student's family in important decisions related to commitments or competitions that may interfere with the student's performance as a way to gain their trust and support in encouraging the student's participation in exercise and sports.

The study findings also suggested that Latinx women may experience discrimination differently than men. As such, it is imperative to consider how to address some of the discrimination that women face by first normalizing their presence and importance in sports and exercise. Academic institutions can begin this process through the promotion of women in sports/exercising on their website and on-campus media promotion. Ultimately, the goal would be to reinforce the message that women are part of the world of sports and exercise. Clinically, counselors need to individually unpack experiences of discrimination related to exercise such as the messages that gender-based teasing can have since the moment Latinx girls step into the playground. Lopez (2019) found that Latinx girls shared feelings of insecurity related to sport/exercise knowledge and body image that emerged from the gender-based teasing they experienced. Clinicians can thus begin to unpack experiences that may resemble what these Latinx girls shared. Beginning groups or support circles may also address the harm caused by gender-based teasing and allow for the opportunity to repair or redefine women's relationship with sport/exercise. Clinicians may also encourage exercise as an immediate intervention that may help Latinx clients cope with some of the effects of discrimination that may stem from their identities. Thus, the gained insight from this study allows our profession to

continue enacting social justice by beginning the process of facilitating the reaping of exercise benefits for Latinxs, especially women, that continue to face health disparities.

Conclusion

Overall, the addition of psychosocial-cultural predictors stands for dimensions of Latinxs' lives that represent their psychological well-being, social environment, and culture. Addressing these predictors means that we take the initiative to explore their impact while acknowledging and appreciating the fullness of Latinxs' lives. This holistic approach provides insight to how we can promote exercise to address current health concerns/disparities that plague the Latinx community and as part of interventions within clinical work. At a minimum, these results open the opportunity to level the field in such a way that Latinxs can reap the benefits associated with exercise.

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APPENDIX A

IRB APPROVAL

ASU Knowledge Enterprise Development

APPROVAL: EXPEDITED REVIEW

Giac-Thao Tran
CISA: Counseling and Counseling Psychology
480/727-4067
alisia@asu.edu

Dear Giac-Thao Tran:

On 9/6/2019 the ASU IRB reviewed the following protocol:

Type of Review:	Initial Study
Title:	Mental health across diverse groups – Secondary data analyses of the Healthy Minds Study
Investigator:	Giac-Thao Tran
IRB ID:	STUDY00010616
Category of review:	(7)(b) Social science methods, (7)(a) Behavioral research
Funding:	None
Grant Title:	None
Grant ID:	None
Documents Reviewed:	• HMS Data Request Form COPY.pdf, Category: Off-site authorizations (school permission, other IRB approvals, Tribal permission etc); • Form-Social-Behavioral-Protocol TRAN HMS 8-27-2019.docx, Category: IRB Protocol; • HMS Data Request Email.pdf, Category: Off-site authorizations (school permission, other IRB approvals, Tribal permission etc);

The IRB approved the protocol from 9/6/2019 to 9/5/2020 inclusive. Three weeks before 9/5/2020 you are to submit a completed Continuing Review application and required attachments to request continuing approval or closure.

If continuing review approval is not granted before the expiration date of 9/5/2020 approval of this protocol expires on that date. When consent is appropriate, you must use final, watermarked versions available under the "Documents" tab in ERA-IRB.

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In conducting this protocol you are required to follow the requirements listed in the INVESTIGATOR MANUAL (HRP-103).

Sincerely,

IRB Administrator

cc:

ASU Knowledge Enterprise Development

EXEMPTION GRANTED

Giac-Thao Tran
CISA: Counseling and Counseling Psychology
480/727-4067
alisia@asu.edu

Dear Giac-Thao Tran:

On 4/26/2022 the ASU IRB reviewed the following protocol:

Type of Review:	Continuing Review
Title:	Mental health across diverse groups – Secondary data analyses of the Healthy Minds Study
Investigator:	Giac-Thao Tran
IRB ID:	STUDY00010616
Funding:	None
Grant Title:	None
Grant ID:	None
Documents Reviewed:	None

The IRB determined that the protocol is considered exempt pursuant to Federal Regulations 45CFR46 (4) Data, documents, or specimens on 4/26/2022.

In conducting this protocol you are required to follow the requirements listed in the INVESTIGATOR MANUAL (HRP-103).

If any changes are made to the study, the IRB must be notified at research.integrity@asu.edu to determine if additional reviews/approvals are required. Changes may include but not limited to revisions to data collection, survey and/or interview questions, and vulnerable populations, etc.

REMINDER - - Effective January 12, 2022, in-person interactions with human subjects require adherence to all current policies for ASU faculty, staff, students and visitors. Up-to-date information regarding ASU's COVID-19 Management Strategy can be found here. IRB approval is related to the research activity involving human subjects, all other protocols related to COVID-19 management

including face coverings, health checks, facility access, etc. are governed by current ASU policy.

Sincerely,

IRB Administrator