

The Effect of Cultural Differences in Sports Mental Imagery Psychology Outcomes

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Abstract

Many athletes face mental stress from the pressure to excel, which often causes distress, performance anxiety, and depression. Sports psychologists train athletes to envision practicing their sport through prompts that lessen stress so that during the actual sports event, they can perform optimally and have better mental health. Studies have explored the mechanisms, neurobiology, and practical applications of mental imagery in sports psychology, but most do not consider the athletes' cultures. Culture, the set of ideas and behaviors shared by a group of people, influences the variability of human behavior; therefore, it is an important variable to consider when researching sports psychology techniques. This paper broadens research on sports mental visualization techniques by focusing on Asian Americans. Sociocultural studies have found negative nonathletic stereotypes associated with Asian American athletes, which are compounded by the Model Minority stereotype that this group internalizes. Surveys were conducted to understand if sports mental imagery training had the same effect on Asian Americans as other cultural groups and to determine if Asian American athletes experienced greater stress and the reasons behind it. The results suggest that Asian American and non-Asian cultural groups respond similarly to mental imagery stress interventions (basketball $p < 0.05$, badminton $p = 0.05$, baseball [negative control] $r = 0.06$), but that Asian American athletes experience more stress than the other groups who participated in the surveys (4.5 out of 10). Asian American athletes may benefit from targeted mental imagery techniques that alleviate stress related to racism within athletics.

INTRODUCTION

Simone Biles, one of the most decorated Olympic gymnasts in history, made headlines and provoked public outrage when she withdrew from the 2020 Summer Olympics in Tokyo due to a case of “the twisties,” a physical manifestation of psychological stress where gymnasts develop an inability to maintain control of their body while in the air. The US Gymnastics issued a statement stating that Biles was withdrawing to “focus on her mental health” (Barbu, 2021, para. 17). Although most high school students do not compete at the same level as Biles, many also endure mental stress surrounding sports when balancing expectations from parents, peers, coaches, and themselves, competing for coveted positions in starting lineups and juggling academic and social responsibilities. Approximately 91 percent of high school athletes report stress due to sports, with fear of failure (64%), pressure from self-expectation (66.5%), anxiety of peer judgement (45%), self-expectation (35%), coach pressure (34%), and parental pressure (21.5%) reported as the most common causes of stress (Ward, 2023).

To aid high school athletes perform their best, students, parents, and teachers often turn to sports psychologists who apply psychological techniques to optimize athletic performance (Singh, 2022; Butler, 2020). Maintaining a sharp mental game helps heighten an athlete’s overall physical health, mental resilience, athletic potential, and overall well-being (Golby, 2016). Mental imagery, or visualizing an experiences without the actual presence of the external stimulus to senses of touch, smell, vision, or hearing (Pearson et al., 2015) is one such strategy under sports psychology that athletes use to alleviate mental health issues, that has been extensively studied; the keywords “Mental Imagery” AND “Athletics” yield over 2,920 results on Google Scholar.

Less discussed is how cultural differences among athletes may lead to different outcomes using mental imagery to improve sports performance. Culture is the set of shared ideas and behaviors among a group of people, and as such, plays a role in psychology and influences differing attitudes towards sports, cultural and societal expectations, parental and societal influence within the sport. Despite the role of culture shaping variability in human behavior and responses, this is an often-ignored variable within sports psychology studies. A large number of papers on the subject of cultural sports psychology highlight the dearth of research in understanding the nuances of sport psychology among different cultural groups; Allison and Duda authored a paper titled “Cross-cultural Analysis in Exercise and Sport Psychology: A Void in the Field” that discusses the near absence of cross-cultural analysis in sports psychology (Allison and Duda, 1990). One might think that the situation has improved since 1990 but Blodgett et al. highlight the same issue and provide suggestions on how to “extend the limited body of research on marginalized cultural identities via a Cultural Sports Psychology approach [...] advance[ing] social change and social

justice” (Blodgett et al, 2014, p. 24). Meanwhile, Mashreghi “call[ed] for decolonizing the knowledge and scholarship within sport and exercise psychology by utilizing transformative approaches that centralize the voices of the cultural ‘other’” (Mashreghi, 2020, p.25). As such, although mental imagery appears to be an effective technique for stress alleviation in sports psychology, its applications and expected outcomes may not apply to all due to biases in the existing literature.

The aim of this paper is to widen the research on sports mental visualization techniques by focusing on a traditionally marginalized cultural group in sports psychology—Asian Americans—particularly Asian American high school students. Various sociocultural studies found negative stereotypes were associated with Asian athletes who are viewed as non athletic, short, and physically weak, (Lapchick, 2002; Hively & El-Alayli, 2014; Wong, Horn & Chen, 2013). This paper hypothesizes that this group faces added stress factors in sports due to such negative stereotypes that likely affect their self-perception and sports performance.

The goal is to understand if mental imagery techniques have different outcomes in alleviating stress within this unique subset, if this group faces stress related to athletics differently, and if so, what are the possible reasons and solutions to aid Asian American high school athletes in performing their best within sports.

LITERATURE REVIEW

Mental Imagery’s Role in Sports Psychology Perspective

Mental imagery is visualizing an experience without the actual presence of the related external stimuli and is a fully immersive procedure that incorporates similar cognitive and motor mechanisms to the performance of the actual task itself (Pearson et al., 2015; Holmes and Matthews, 2007). Mental imagery techniques can increase athletes’ motivation, motor and cognitive skills, and execution of an athletic task (Feltz & Landers, 1983; Smith & Wright, 2007; Munroe-Chandler, Hall, & Fishburne, 2008). By mentally rehearsing overcoming challenges, athletes can prepare for the real competition and help decrease performance anxiety, a common hurdle that inhibits successful execution (Bertollo et al., 2009). Through additional mental rehearsal, anxiety having to do with execution is put aside and replaced with confidence from the mental visualizations of success. These studies suggest that mental imagery is a resourceful tool for athletes. Despite this, a review of several articles on sports mental imagery revealed that culture was typically a variable that was omitted from the articles (Table 1).

Authors and Year	Subjects (n)	Age	Sex/gender	Race, ethnicity, or culture	Sport analyzed
Feltz & Landers, 1983 (98 studies)	1453	Omitted	50 males, 50 females	Omitted	Lots of different sports
Munroe-Chandler, Hall, & Fishburne, 2007	110	Ages 7-14, mean about 10	54 males, 56 females	Omitted	22 different sports
Slimani, Tod, Chaabene, Miraka, Chamari, 2016	Study 1: 54 Study 2: 18 Study 3: 11	Wide range	Study 1: Omitted Study 2: 18 Males, 0 Females Study 3: 9 males, 2 females	Omitted	Treadmill/Strength training
Rennor, Murphy, Ji, Manly, Holmes, 2019	72	Mean age: 36.35	28 males, 44 females	Omitted	6 selected activities

Table 1: A summary of the subjects from a few studies and reviews related to sports mental imagery indicating that race, ethnicity, and culture were often not considered when conducting such studies. (By author)

Why Consider the Cultural Differences Perspective?

Although the above review was not exhaustive, it was alarming that race, ethnicity, and culture were not mentioned and considered in the study methodology when selecting the subjects. This problem is not unique to sports psychology; statistically, over 98 percent of participants in research studies are of European descent and predominantly white (Konkel, 2015). This bias has led to hesitancy in generalizing results from research to the greater population (Konkel, 2015). A 2014 study showed that less than 2 percent of cancer clinical trials included racial minority subjects, and only 1.9 percent of research studies focusing on respiratory diseases included racial minority subjects (Scientific American, 2018). Health disparities in minority groups, in part caused by this bias, cost the United States more than 1.2 trillion dollars in medical expenses (Konkel, 2015). Like other fields, the oversight of cultural variability within sports psychology is also present. Duda and Allison (1990) conducted a review of the attention paid to racial or ethnic variation in sports research and found

that over 96% of empirical papers in the Journal of Sports Psychology did not report the race or ethnicity of their subject population. They concluded that race and ethnicity are not factors of major interest in the field of sports psychology and that this failure to consider ethnic diversity diminishes the experiences of minorities within athletics and leaves research biased and inaccurate. This is a concern because while most studies focus on white athletes, 31.65 percent of NCAA student athletes are minorities (NCAA, 2023).

Despite most studies not considering culture within the scope of their study, a few have looked at this from a sports psychology perspective. Anshel et al studied the coping styles for acute stress between African American and Caucasian competitive athletes and found that Caucasians experienced higher stress than African Americans and that Caucasians used approach-behavior coping styles when dealing with acute stress from sports (Anshel, 2008). Fekih et al. (2021) studied the influence of mental imagery training on anxiety in fasting tennis players during Ramadan and concluded that 30 minutes of mental imagery training per week (3 sessions of 10 minutes) alleviated the intensity of cognitive anxiety. Meanwhile, Ponzio studied the model minority myth's impact on Asian American female athletes and concluded that much of the internal pressure and stress to excel at their sport stemmed from internalization of the model minority myth by themselves rather than from parental values and institutions (Ponzio, 2022). Not only that, but these individuals tended to go to extremes to find recognition because high achievements are so common among the group, making efforts often disregarded while simultaneously causing greater stress when one failed to meet their expected outcomes (Ponzio, 2022). None of the studies reviewed address the nuances between cultural groups in regard to mental imagery techniques and their outcomes in stress management. This study attempts to close this gap in the literature by focusing on Asian American high school athletes to understand if sports mental visualization techniques are as effective for this group compared to other cultural groups.

Asian American Athletes: Synthesizing An Overlooked Group with a Research Gap

Asian Americans were chosen for this study not only because of their status as an often-overlooked minority, but because the literature suggests that Asian American athletes suffer from particularly poor mental health. Tran (2020) found that rates of depression were highest in AAPI student athletes, and that this group did not benefit from student-athlete status and instead being a student athlete seemed to put them at a greater risk for suicidal ideation (Tran, 2020). Caucasian student-athletes appeared to benefit most from that status and sports in the Black community is viewed as a way for recognition and widely institutionalized as one of the few paths to success for many within that group

(Wenner, 1994; Anshel et al., 2009). In contrast, Asian Americans often face pejorative stereotypes, microaggressions, and discrimination within sports. Asian athletes are typically viewed as non athletic, short, and physically weak (Lapchick, 2002; Lu and Wong, 2013; Burtka, 2021). These stereotypes affect an Asian athlete's ability to perform in their sports, as stereotypes affect self-perceptions, performances, feelings, thoughts, beliefs, and behavior (Hively & El-Alayli, 2014; Wong, Horn & Chen, 2013; Yu et al., 2016). Many Asian athletes report feelings of not belonging in the sports environment, wondering if they were respected by their peers and coaches, and wondering if they were competent enough. Furthermore, as noted previously, the model minority myth worsens this situation. The myth is defined as the: "[...] stereotype about Asian Americans, in which they are expected to have socioeconomic and academic success within the population, based on inherent talent and supposed intellectual tendencies and abilities. They have in a sense achieved the American Dream referring to hard work equals success within our country" (Ponzio, 2022, p.30). Although 5 percent of adolescents in the United States are Asian — with about 2.2 million Asians aged 10-19 living in the United States — Museus and Kiang (2009) stated that lower than 1 percent of academic research centers around Asian Americans because of the model minority myth that does not consider them to be minorities and do not face social challenges, and therefore not needing help (Ponzio, 2022). It is likely due to these extenuating factors that Asian American athletes have not been prioritized in sports mental imagery research for improving mental health.

It is hypothesized that the outcomes of sports mental imagery techniques for Asian American high school athletes will be similar to those of other cultural groups because the cognitive processes of athletic tasks, mental imagery, and self-assessed performance should remain relatively the same. However, it is also hypothesized that the self-reported stress levels that Asian participants attribute to sports may be higher than other culture groups as a result of potential external factors related to racism, which may influence their confidence in their ability and their feelings of belonging and thereby affect their performance, therefore suggesting that this group may need additional and targeted mental imagery techniques that aid with alleviating stress related to racism within athletics.

METHODOLOGY

Participants

Participants were high schoolers (age 13-18) who participated in sports. The first survey was sent to 2 classes of 25 students. The second survey was sent to 4 different classes of 25 students. In the first survey, only answers from Asian respondents were included in the data analysis.

The second study included students from any ethnicity. Geographically, participants were mainly situated in Northern California.

Procedure

Two separate surveys were conducted; the first to see if Asian American students' mental imagery skills in respect to sports led to similar results as previous studies by Smith & Wright (2007) and Slimani et al. (2016), without prompting the participants to think about their own race (the "stressor") when answering questions about self-assessed skill. The second was to understand the effects of potential stigma and stereotypes on Asian American athletes.

The first survey was sent exclusively to self-identified Asian American high school athletes, with questions targeting each participant's perception of confidence level in their specific sport and how they in turn perceived equipment in three different sports (e.g. hoop, bat, and birdie). For example, participants asked to "rate their badminton skills from 1-10" and then to "estimate the size of the racket net." The survey was conducted to test the relationship between self-perceived competence levels and mental imagery acumen through imagery of equipment size. It was hypothesized that if an individual was better at a sport, then they would perceive the size of the equipment more accurately than someone who was not as skilled. For badminton and for basketball, the size of the birdie and the hoop are standardized measurements; for baseball, barrel width was assessed even though baseball barrel width is not a standard size. This last question served as a control to compare mental imagery across groups and see if there were any mental imagery effects even on sports equipment that were not standard sizes. It was hypothesized that because there is no standard baseball barrel width, that mental imagery would not aid an athlete in estimating a "correct" size. The reason the first survey was done separately from the second was to focus on the experiences of Asian high school athletes without the mention of race and racism that would pose a possible confounding variable, and to see if the studies done previously, which showed a correlation between mental imagery and sport execution, also applied to them. While it was hypothesized that there would be no difference between our results and those of other studies done on other cultural groups, we opted to test this to ensure there are no unexpected results in terms of the mental imagery process in Asian American high school athletes.

Badminton, basketball, and baseball were chosen as the sports for assessment. The first reason these sports were chosen was because they have equipment and objects that athletes interact with (e.g., a baseball bat, a basketball hoop, a badminton birdie), as opposed to sports that do not such as wrestling. The second reason had to do with each sport's unique, but overall all-encompassing

movements/tasks. Badminton requires excellent hand-eye coordination skills, quick reflexes, spatial awareness, and agility (Yu and Mohamad, 2022). Badminton was also selected because it was an individual sport—thus potential confounding factors such as a coach’s opinion or one’s status on the team may be weaker when the participant assesses their skill in the sport. Although not one of the most popular sports among Americans in general, badminton is one of the most popular sports played by Asian Americans - 95 percent of players on the junior level are Asian (Chatterjee, 2023). Basketball encompasses more strenuous movements, such as running and jumping, over a longer court and involves more sensory detail and quick decision making; additionally, the team sport aspect of basketball also affects an athlete heavily. A study found a significant difference between badminton players and basketball players in comparison to speed, agility, explosive strength, grip strength (Singh, 2017). Baseball involves hand-eye coordination, quick reaction times, and various sensorimotor tasks (Burris, 2018). Please see Appendix A for the list of questions asked in Survey 1.

The second survey looked at the relationship between stress, its self-reported source, and confidence level in sports; questions about how stress affects sports performance and one’s feeling of belonging in their sports community” as well as their self-perceived ability in sports were asked to gauge the relationship between these external factors which affect an athlete’s optimal performance. Subject participants included people of all races to test if the effect of stress due to racism is more pronounced in Asian Americans. Please see Appendix B for the list of questions asked in Survey 2.

Both surveys were conducted online and participants were mainly situated in Northern California. Once the data was collected, a linear regression for the line of best fit, which accounted for p-value (statistical significance), was used to determine trends between one’s competence in the sport and their perception of the abilities/equipment in their sports. Averages of responses were also calculated to understand if trends existed among certain ethnicities.

RESULTS

Study 1: Mental Imagery Effects on One’s Perception of Confidence Among Asian American Teenage Students

A total of 40 students filled out survey one. While the participants’ top-two favorite sports were badminton (22.2%) and basketball (16.7%), none of them (0%) indicated baseball as their favorite sport (Figure 1). Moreover, almost all of them rated themselves as below average in baseball; only three of them rated themselves at the average level of competence, and only one student’s self-assessed baseball competence level was above average.

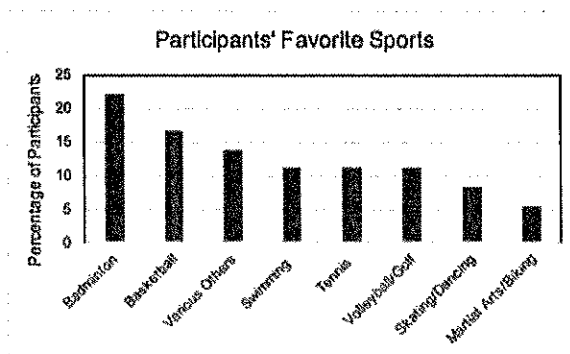


Figure 1: The percentages of the participants' favorite sports. (By author)

Basketball

There was a direct positive correlation between the participants’ self-assessed levels of competence in basketball and what they perceived the basket size in basketball to be ($r = + 0.39$). The slope of the regression line was statistically significantly, $t(35) = 2.46, p < 0.05$. Generally, subjects whose self-assessed levels of skill were higher also judged the basket as bigger. Figure 2 shows the relationship between the competence level and the estimated diameter of the basket.

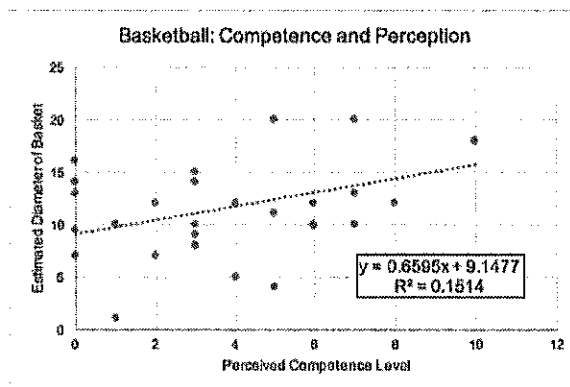


Figure 2: The Relationship Between Competence Level and Estimated Size of the Basket (in inches). (By author)

Badminton

There was a direct positive correlation between the participants’ self-assessed levels of competence and what they perceived the length of the badminton racket-net to be ($r = + 0.32$). The slope of the regression line was significantly greater than zero, $t(35) = 1.96, p = 0.05$. Generally, subjects whose self-assessed levels of competence in badminton were higher also judged the racket-net as longer. Figure 2 shows the relationship between the competence level and the estimated length of the net of the badminton racket.

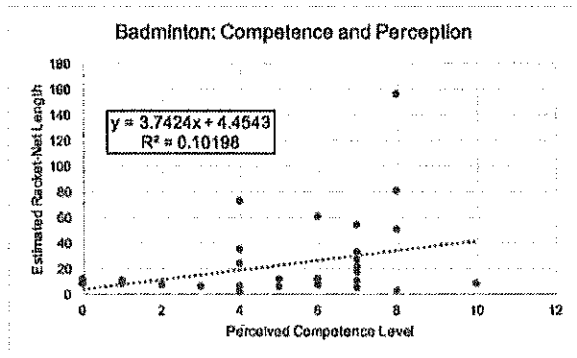


Figure 3: The Relationship Between Competence Level and Estimated Length of the Racket-Net (in inches). (By author)

Baseball

There was no correlation between the participants' self-assessed levels of competence in baseball and what they perceived to be the width of the thickest part, the barrel, of the baseball bat ($r = 0.06$). The slope of this regression line was not significantly different from zero.

Study 2: Effects of One's Ethnicity, Stress Levels, and Sports Performance

Participants were high schoolers (ages 13-18) who have played in sports. There were a total of 64 responses, but 11 participants indicated they did not play sports; 53 responses were used for data analysis. Open field responses were analyzed for patterns to determine correlation between one's ethnicity, one's confidence levels, their greatest factor of stress due to their sport, and their feeling of belonging in their sport.

Hours Practiced, Ethnicity, and Stress

White participants ($n = 14$) averaged a weekly 15.3 hours participating in their main sports activity; on the other hand, African-American participants ($n = 7$) averaged 15.0 hours of sports activity while Asian American ($n=30$) participants averaged 7.1 hours of sports activity. Asian Americans had the lowest sport self-efficacy scores (score = 5.7) compared to White (score = 8.6) and African American counterparts (score = 9.0). Asian participants also corresponded to the highest stress level due to sport (score = 4.5) compared to White/Caucasian (score = 2.5) and Black/African American (score = 1.9) participants. Asian Americans sports performance also were affected the most by stress with a score of 4.6 compared to 2.1 and 1.3, respectively for African American and White participants (Figure 5).

Ethnicity	Hours of Sports Practice	Self-Assessment of Sport Skill (0-10, with 10 being Excellent)	Self-Assessed Stress Level from Sport (1-10, with 10 being very stressed)	Self-Assessed Impact of Stress on Sports Performance (0-10, with 10 being very high impact)
Black or African American	15.0	9.0	1.9	2.1
Asian or Asian American	7.1	5.7	4.5	4.6
White or Caucasian	15.3	8.6	2.5	1.3

Table 2: Averaged survey evaluation values by ethnicity. (By author)

Relationship between Stress and Feeling of Belonging

There was a slight correlation among student athletes' feeling of belonging and stress level from sports participation ($r = 0.16$) (Figure 4).

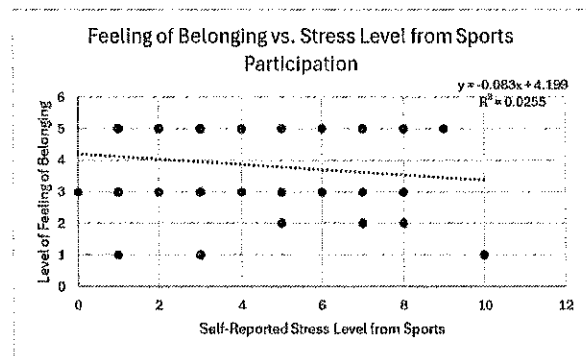


Figure 4: Participant self-reported stress level from sports versus feeling of belonging. (By author)

Although 19 participants stated they did not experience stress, analysis of responses for those who did experience stress often stated the reason was due to some sort of societal/cultural expectation or social pressures" ($n=18$, 9 of whom were Asian/Asian American) or because they lacked time (due to homework or other activities) ($n=6$, 5 of whom were Asian/Asian American). The most common subfactors under the societal or cultural expectations category were participants feeling the impact of the competitive environment, overwhelming pressure/critiques from coaches, and college recruitment.

Most student athletes felt that stress impacted their ability to perform at an optimal level with 18 participants referencing performance anxiety and mental health issues; 11 of these individuals identified as Asian/Asian American. Many participants struggled with the impact of long-term chronic stress on mental health, the need to impress coaches, and with lacking confidence with oneself.

Surprisingly, all student athletes who stated that they belonged in their sports community (n = 25) cited close friendships with their teammates as the reason rather than their skill at the sport. On the other hand, 18 subjects stated “not feeling good enough at the sport or a toxic environment” as the reason they did not feel like they belonged. While friendship appeared to be the biggest factor for belonging; people who felt they did not belong seemed to feel this way because they thought they were not good enough at the sport to be part of the community.

Hours Practiced versus Stress Levels by Ethnicity

When evaluating the relationship between the amount of hours a participant practiced their sport and their corresponding stress levels due to their sport, it was noted that the more Asian Americans practiced their sport the more stressed their sport made them, there was no relation for white participants, and African Americans became less stressed as they practiced their sport more (Figures 5-7).

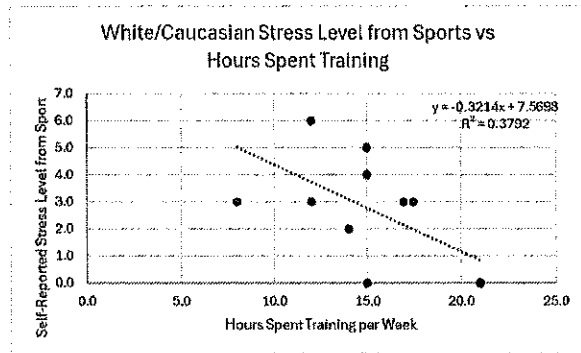


Figure 7: Caucasian participants' hours spent training per week versus stress level. (By author)

DISCUSSION

The results suggest that Asian/Asian American athletes are more stressed when practicing sports than their White/Caucasian and Black/African American counterparts. They also appeared to feel like they do not belong more so than their non-Asian peers. However, contrary to what was hypothesized, none of the Asian/Asian American students cited racism or discrimination as the reason behind feeling ostracized. Rather, participants who stated that they felt like they belonged indicated having friends within their sports teams made them feel like they belong, while those who felt they did not belong stated it was because they felt they were not good enough at their sport. As noted by Ponzio (2022), Asians often subscribe to the Model Minority stereotype and fall victim to the pressures of feeling like they need to excel and be perfect in everything, including their sports performance, leading to stress and poor mental health. It is also worth noting that those who identified as Asian/Asian American tended to train less than half of the duration compared to White/Caucasian and Black/African American participants did, and were the main group to cite lack of time to practice and inability to have enough time for homework and other activities, as the reason for their stress. This further supports the idea that Asian/Asian Americans feel particular pressure to adhere to the Model Minority stereotype and feel stress when they are unable to dedicate enough time to become what they perceive as the best in a sport. Stanger et al. (2024) studied the link between perfectionism, burnout, and moral disengagement in 312 athletes and found perfectionist behavior was negatively correlated to prosocial behavior toward teammates and negatively linked to altruism (Stanger et al., 2024; Stoeber, 2014). In short, the data suggest that Asian students already did not feel like they belong because of their self-perceived mediocrity at a sport due to the Model Minority stereotype, which exacerbated feelings of stress.

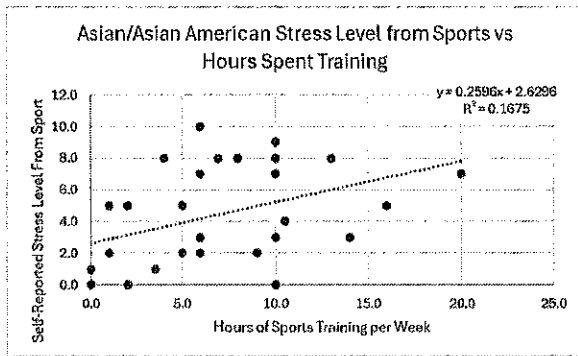


Figure 5: Asian American participants hours of sports training per week versus stress levels from sports. (By author)

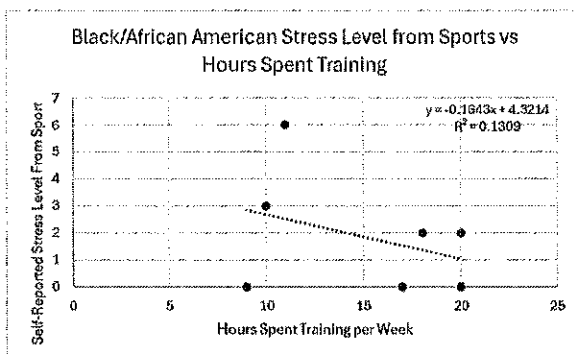


Figure 6: African American participants' hours spent training versus stress level. (By author)

As a result of the stress, they exhibited less prosocial behavior, a possible reason why they had fewer friends which further adds to a poorer sense of belonging – fueling the negative cycle of stress and poor belonging. Despite this correlation, the causation, along with the mechanisms of interplay between these different factors, are beyond the scope of this paper.

While Asian American athletes appear to need greater intervention for stress reduction and poor mental health as Survey 2 inferred, Survey 1 shows that this same group responds similarly to mental imagery technique intervention as do other cultural groups. Due to the extra added stress, burnout, and moral disengagement caused by negative stereotypes among Asian American athletes, this group could benefit from more targeted mental imagery techniques. Mindfulness and valued living (MVL) rooted strategies - a term encompassing mindfulness, acceptance, and contextual cognitive behavioral therapies through emotions, thoughts, and behaviors - were beneficial in decreasing internalized messages to reduce racism-related stress (Martinez et al., 2023). Although this method shows promise, it is new and requires further research to explore its effectiveness, particularly in different cultural groups (Martinez et al., 2023). Reduction of racism-induced stress through mental imagery is still an emerging topic, but preliminary work shows some promise (Mariolle, 2019).

Despite several interesting findings that infer the effectiveness of mental imagery in alleviating stress in Asian American high school athletes, limitations of this study include a small sample size and inherent bias of self-assessments that could lead to inaccuracies. A more robust sample size is required to draw firmer conclusions and to gather more even responses from participants of different sports and varying ethnicities; note that despite sending the sample to various classrooms, somehow no Hispanic/Latino participants were surveyed. Surveys that ask about self-assessments have benefits and drawbacks like all research methods. In this case, an example of a possible problem with the data collected is that Asian/Asian Americans had the lowest scores in self-reported sport performance but this could be because this group is particularly critical of their own skills due to having impossibly high standards for themselves and low self-esteem related to sports; a study that objectively measures athletes' skills across different ethnicities could further elucidate the Model Minority stereotypes' effects on performance and self-esteem.

CONCLUSION

The results from this study suggest that mental imagery intervention can help Asian Americans much like these interventions have done for other cultural groups. Furthermore, this study elucidated the higher stress levels,

lower feelings of belonging, and fewer hours spent practicing sports among Asian American high school athletes. Further work in this area is greatly needed as Asian Americans appear to exhibit more sports-related mental stress than their non-Asian counterparts and have heightened risk of depression and suicide concerns (Tran, 2020). Specific interventions that aid in racism-related stress is needed for Asian Americans who face added stress when practicing sports. The Mindfulness and Valued Living (MVL) strategies appear to be a possible candidate to aid in racism-related stress within sports and should be explored for its possible applications within the Asian American athletics community. This research has greater implications for minority athletes in general, as by demonstrating the nuances in Asian Americans athletes' mental health, it challenges researchers to consider greater inclusion of minorities within their research and to identify and rectify the unconscious biases in their subject screening methodologies. It is the hope of the author that this article serves as a starting point for continued conversation on this subject to produce more equitable research for all.

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APPENDIX A

Survey 1 (Exclusively Asian American athletes between ages of 13 and 18)

I'm researching how mental health and stress factors affect athletic performance. This survey will take 3-5 minutes and your responses are all anonymous and are completely confidential. The survey results will be used in my AP Research paper. Thanks so much for taking my survey!

There are no foreseeable risks associated with your participation in this study except those encountered in everyday life; participation is voluntary and you can withdraw from the survey by closing your browser at any time.

1. Imagine your favorite sport; what is it?
2. How good do you think you are at basketball (scale 1-10)?
3. Please estimate how long you think the diameter of the basket is (in inches).
4. How good do you think you are at badminton (scale 1-10)?
5. Please estimate how long you think the longest length of the badminton racket-net is (in inches)
6. How good do you think you are at baseball (scale 1-10)?
7. Please estimate how long you think the width of the thickest part of the baseball-bat is (in inches)
8. What is your gender?
 - a. Male
 - b. Female
 - c. Other
9. What is your age?
10. What is your ethnicity?

APPENDIX B

Survey 2 (Asian American, Caucasian, and African American athletes between ages of 13 and 18)

I'm researching how mental health and stress factors affect athletic performance. This survey will take 3-5 minutes and your responses are all anonymous and are completely confidential. The survey results will be used in my AP Research paper. Thanks so much for taking my survey!

There are no foreseeable risks associated with your participation in this study except those encountered in everyday life; participation is voluntary and you can withdraw from the survey by closing your browser at any time.

1. What is your ethnicity?
2. What is your main sport that you play?
3. How many hours a week do you practice your sport?
4. From a scale of 0-10, how good do you think you are at your sport compared to your peers?
5. From a scale of 0-10, how stressed does your sport make you?
6. Why did you rate that stress level for your sport?
7. From a scale of 0-10, how much does stress impact your sports performance?
8. In what way does stress impact your sports performance?
9. How often do you feel like you don't belong in your sports community?
 - a. Never
 - b. Sometimes
 - c. Often
 - d. Always
10. Please explain your previous response for your feeling of belonging in the sports community.
11. What is your age?
12. What is your gender?