

2019

FLEXIBILITY IN THE BRAIN AND MUSCLES: EXAMINING PSYCHOLOGICAL FLEXIBILITY, ATHLETIC IDENTITY, AND STIGMA WITHIN SPORT CULTURE

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FLEXIBILITY IN THE BRAIN AND MUSCLES: EXAMINING PSYCHOLOGICAL
FLEXIBILITY, ATHLETIC IDENTITY, AND STIGMA WITHIN SPORT CULTURE

A Thesis

Presented to

The Faculty of the Department of Psychology

Murray State University

Murray, Kentucky

In Partial Fulfillment

Of the Requirements for the Degree

Of Masters of Science in Clinical Psychology

By Brighton Hollingsworth

August 2019

Abstract

Interventions designed to increase psychological flexibility have been shown to reduce mental health stigma, and such interventions have shown to be effective in athletic populations. The current study assessed the relationship between athletic identity and mental health stigma while also observing the moderating effects of psychological flexibility within that relationship. An exploratory analysis was also conducted to observe the moderating effect of psychological flexibility on the relationship between athletic identity and barriers to care. Participants ($N = 176$) from online sport-themed communities completed measures to assess mental health stigma, barriers to care, athletic identity, current symptoms of distress, social desirability, and psychological flexibility. Findings showed that athletic identity and mental health stigma were positively related. Psychological inflexibility was positively related to mental health stigma, barriers to care, and current symptoms of distress. However, psychological flexibility did not significantly moderate the relationship between athletic identity and mental health stigma. Psychological flexibility also did not significantly moderate the relationship between athletic identity and barriers to care. Applied implications and future directions for research are discussed.

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Chapter I: Introduction

Professional Athletes and Mental Illness

Mental illness can affect everyone in our society, including professional athletes. Recently, current and former professional athletes have begun sharing their struggles with mental illness in hopes to decrease the stigma they and many others experience. The National Basketball Association (NBA) is one area where many athletes, such as Kevin Love, Shane Larkin, DeMar DeRozan, and Marcus Morris, have begun sharing their stories. MacMullan (2018a) reported that Kevin Love was one of the first to speak out about his struggles with anxiety after experiencing a panic attack on the court during a game. Since then, MacMullan (2018b) reported that Shane Larkin shared his struggles with obsessive compulsive disorder (OCD), Dubinski (2018) reported that DeMar DeRozan shared his struggles with depression, and Yang (2018) reported that Marcus Morris shared his struggles with anxiety and depression. The NBA has now hired a director of mental health and wellness, which could possibly be linked to these players sharing their stories.

Olympic swimmers, such as Michael Phelps and Missy Franklin, are another group of athletes who shared their stories about their struggles with mental illness. Newberry (2018) reported that Michael Phelps opened up about his struggle with depression, substance use, and suicidal thoughts. Similarly, Ross (2018) reported that Missy Franklin shared her struggles with depression, anxiety, insomnia, and an eating

disorder. As a result of sharing his story, Michael Phelps now has a partnership with an online therapy service called Talkspace (Newberry, 2018). Missy Franklin stated that it was helpful for her to see other Olympic swimmers, such as Michael Phelps, speak out about their struggles because it showed her there was no shame involved (Ross, 2018).

Players in the National Hockey League (NHL) and the National Football League (NFL) have also begun sharing their experiences. Simmons (2017) reported that Shayne Corson, a former NHL player, has shared his struggles with anxiety and Siegler (2018) reported that Brandon Marshall, a current NFL player, has opened up about his diagnosis of borderline personality disorder. Both Corson and Marshall stated that they felt better once they opened up to others about their struggles (Siegler, 2018; Simmons, 2017). Marshall stated that it allowed him to grow closer to his teammates, and Corson stated that it allowed him to realize that others struggle too (Siegler, 2018; Simmons, 2017).

Austin Watson, a current NHL player, has recently spoken out about his struggles with mental illness. Watson (2019) shared that he has dealt with anxiety, depression, and alcoholism since he was eighteen years old. Watson also shared that his experience with mental illness has felt lonely, consuming, and unbearable at times. On June 16, 2018, Watson had relapsed, regarding his sobriety from alcohol, and experienced legal consequences as a result. Due to these consequences, the NHL offered services to Watson through their NHL Substance Abuse and Behavioral Health program (SABH). Watson stated that the SABH program helped him regain his sobriety and commit to a healthy lifestyle (Watson, 2019).

All of these athletes may play different sports, but they all have three things in common: they have all struggled with mental illness, experienced stigma related to their

struggles, and have spoken out about their experiences in order to help others experiencing the same thing whether they are professional athletes or not. Regarding stigma, DeMar DeRozan expressed that he worried about people calling him weak (Dubinski, 2018), Missy Franklin shared that she felt pressure to be strong and confident because she is an Olympic athlete (Ross, 2018), Brandon Marshall reported that an opponent called him crazy after sharing his story (Siegler, 2018), Shayne Corson shared that he was afraid and embarrassed to show weakness (Simmons, 2017), Shane Larkin expressed that he did not want people to think he was a “weirdo” (MacMullan, 2018b), and Kevin Love shared that he was taught early on in life that anything besides sucking it up and dealing with it was perceived as weakness (MacMullan, 2018a).

Stigma towards mental illness has been experienced by multiple professional athletes (Dubinski, 2018; MacMullan, 2018a; MacMullan, 2018b; Ross, 2018; Siegler, 2018; & Simmons, 2017). This stigma could be encouraging athletes to stay quiet about their experiences by possibly inducing the fear of others seeing them as weak. Powell and Myers (2017) described that sport culture emphasizes mental toughness instead of showing weakness. This culture may increase the stigma an athlete feels when experiencing mental health difficulties due to the symptoms related to their disorder and could also serve as a barrier to seeking care. Grove, Fish, and Eklund (2004) stated that when experiencing mental health difficulties along with stigma, an athlete’s athletic identity can also be negatively affected. Brewer, Van Raalte, and Linder (1993) defined athletic identity as the degree to which an individual identifies with the athlete role. Athletic identity may be an important contributor to stigma because it can serve as a part of an individual’s cognitive beliefs of themselves as well as be an individual’s primary

social role. Despite athletes' mental health difficulties as a result of disorder-related symptoms, which may influence their athletic identity partially due to stigma they may feel, interventions which emphasize psychological flexibility have shown effectiveness in the way one perceives stigma and psychological difficulties. Bond and colleagues (2011) defined psychological flexibility as the ability to fully contact the present moment and the thoughts and feelings it contains without defense and changing behavior in the pursuit of values and goals. This study seeks to explore the mental health difficulties experienced by athletes due to disorder related symptoms, how their athletic identity may increase stigma they feel, and how psychological flexibility plays a role in the relationship between athletic identity and stigma.

Stigma

Reeder and Pryor (2008) define stigma as a discrediting attribute which signals that one's identity is discredited and because of that discrediting the individual is to be avoided in society. Two forms of stigma include self-stigma and public stigma. Self-stigma involves feelings of shame, anxiety, and grief within the person being stigmatized. Public stigma involves the general public's negative beliefs, attitudes, and behaviors directed at those experiencing stigma. Self-stigma is often a result of someone experiencing public stigma, which occurs when one begins to believe the public's stigmatizing negative attitudes about themselves. People can also experience stigma by association, which occurs when an individual who is associated with another individual who is experiencing stigma also becomes stigmatized as a product of the association (Reeder & Pryor, 2008).

Corrigan and colleagues (2010) state that self-stigma represents the impact of internalizing and applying stereotypes of mental illness to themselves. When individuals experience self-stigma, their self-esteem and self-efficacy can be negatively impacted. Individuals who are open about their struggles with mental illness may expose themselves to increased social disapproval and discrimination. However, individuals who believe that they are in control of their decisions, such as seeking mental health services, are less likely to internalize perceived stigma. One coping skill that has been shown to decrease self-stigma in individuals with mental illness is being associated with other members of stigmatized groups, which may lead to developing a group identity (Corrigan et al., 2010). Other than coping skills, individuals with mental illness have found ways to try and manage their self-stigma. Some use affirming strategies in order to frame stigma as an unjust, outer force that should be decreased by changing public attitudes (Corrigan et al., 2010). Some handle stigma by detaching themselves from the importance of experiencing stigmatizing interactions (Corrigan et al., 2010). Lastly, some use strategies of shame, which involve the individual validating the stigma they experience and in turn concealing their mental illness through withdrawing from social interactions (Corrigan et al., 2010). Luoma and colleagues (2007) also stated that self-stigma is associated with delayed care seeking, decreased self-esteem and self-efficacy, and a lower quality of life.

Another form of stigma is known as social stigma, which includes rejection in the workplace, discriminatory practices, and unsympathetic health care providers (Reeder & Pryor, 2008). Corrigan, Druss, and Perlick (2014) stated that, because stigma is a social construct, it is influenced by culture. One's cultural values may influence one's

acceptability of stigmatized attitudes. Cultural competence includes awareness, knowledge, skill, encounters, and motivation (Corrigan et al., 2014).

Previous research has shown that a new diagnosis of a mental illness can be a threat to one's identity, especially when it is perceived by the individual that their significant others have negative reactions about the diagnosis (Reeder & Pryor, 2008). Individuals often conceal their diagnoses and personal feelings in an attempt to avoid being stigmatized. Individuals will even go to the extent of avoiding treatment in order to conceal their illness (Reeder & Pryor, 2008). Loganathan and Murthy (2015) reported that about 450 million individuals experience mental illness around the world, while only a small portion of them seek treatment. Stigma was the number one barrier to seeking treatment according to the 1999 Surgeon's General Report (Loganathan & Murthy, 2015).

Mental illness stigma has a significant impact on care seeking. Two sets of barriers to care seeking include personal barriers and provider barriers. Personal barriers consist of attitudes and behaviors that affect health decisions, such as stigma leading to the avoidance of treatment (Corrigan et al., 2014). These personal barriers are especially important because care seeking is dependent upon an individual's perception of mental health interventions. Provider barriers consist of financial restrictions, cultural incompetence of the providers, and lack of insurance which can be influenced by stigma. Young adults are less likely to use mental health services when compared to middle aged and older adults (Corrigan et al., 2014).

Athletic Identity

Perrier, Strachan, Smith, and Latimer-Cheung (2014) found that goals, competition, time and effort spent practicing, and performance are all important factors that can influence athletic identity. Athletic identity can act as a cognitive structure that guides the processing of self-related information. Given this, an individual with a strong athletic identity is more likely to process an event, such as an injury or breaking a record, in relation to their athletic abilities than those with a weak athletic identity. Previous research has proposed that the importance one places on their self-concept influences how their perceived competence in that domain impacts their self-worth, affect, and motivation (Brewer et al., 1993).

Coulter, Mallett, and Singer (2017) suggest that one's personality greatly impacts an individual's athletic success despite their athletic ability. Personality in relation to sport has previously been conceptualized as stable traits. An example of these stable traits in sport is "mental toughness." Mental toughness has been defined as a mix of personality characteristics that allow the athlete to excel in achievement-based settings despite high levels of stress and adversity (Coulter et al., 2017). Self-acceptance influences one's development of mental toughness (Powell & Myers, 2017). It has been shown that individuals who display mental toughness are seen as ideal in the sport domain, which promotes mentally tough behaviors. These behaviors include performing well under stress, responding positively to mistakes, and concealing vulnerability; therefore, these behaviors become the norm in which all athletes are then expected to display and by which they are judged by others (Coulter et al., 2017). Displaying the mentally tough behavior of concealing vulnerability may also aid in the athlete avoiding experiencing

stigma (Powell & Myers, 2017). In order to become mentally tough, all athletes would benefit from being exposed to high demand situations within a supportive context.

A cost to becoming mentally tough is the requirement of experiencing intense negative emotions during the adverse experience. However, a benefit of this is learning to use those negative emotions to fuel athletic performance in order to thrive in adverse situations. Engagement in these adverse situations has been shown to support one's athletic identity. Meggs, Ditzfeld, and Golby (2014) conducted a study that investigated the positives of mental toughness in relation to able-bodied athletes. A positive self-concept was found to be associated with overall mental toughness. Within this positive self-concept, confidence and control were also associated with mental toughness. Mentally tough athletes who had positive self-concepts were also not vulnerable to stress. Mental toughness was also shown to be related to intensity of an individual's emotions as well as their self-beliefs. Overall, being a mentally tough athlete may lead to acquiring self-regulatory strategies which increase mental toughness and can lead to prolonged competitive success (Meggs et al., 2014).

Athletic identity can also act as a social role. The extent to which individuals label themselves as athletes is influenced by the attitudes of friends, coaches, family, media, and teachers (Brewer et al., 1993). Kumnig and colleagues (2014) discussed that the amount of pride and respect individuals gain from others contributes to a positive identity. Through this identity, a psychological sense of community is formed which can, in turn, increase one's feelings of belonging and responsibility to an activity such as sport (Kumnig et al., 2014). Having a strong athletic identity comes with costs and benefits. Benefits include engagement in social interaction, developed athletic skills, and

engagement in physical activities (Kumnig et al., 2014). However, the main cost is an increased risk for psychological distress. Those with strong athletic identities have been shown to be more vulnerable to experiencing emotional difficulties as a consequence of an impairment in their ability to engage in sport (Kumnig et al., 2014). Emotional difficulties, such as experiencing depressive symptoms or high stress, have been observed by researchers following injury (Powell & Myers, 2017). This is said to occur because those with strong athletic identities, and especially those who exclusively identify with the athlete role, do not tend to consider other aspects of their self-schema, such as a career or education outside of the athletic domain. These individuals are less likely to explore and commit themselves to other lifestyles because of their intense involvement in sport. Pressures felt within the sport domain have been described as a test of one's personal commitment to the sport (Powell & Myers, 2017). Emotional difficulties in these individuals are especially seen following forced retirement from sport due to premature career-ending injury (Brewer et al., 1993).

Hill, Hall, and Appleton (2010) studied whether athletes are vulnerable to experiencing burnout due to the chronic levels of psychological distress. These researchers found that high levels of socially-driven perfectionism in athletes were related to higher levels of burnout. Burnout consists of emotional and physical exhaustion, reduced athletic accomplishment, and devaluation of sport. Perfectionism in athletes has also shown to be negatively associated with anxiety and achievement-related cognitions. Perfectionism has been defined as a rigid commitment to exceedingly high standards along with the preoccupation with critical self-evaluations. Self-critical

evaluations have been found to be associated with psychological maladjustment (Hill et al., 2010).

Coping is one way these athletes have attempted to manage psychological distress. When an athlete engages in problem-focused coping, they are engaging in strategies that target overcoming stress. Engaging in problem-focused coping has been found to lead to lower levels of burnout in athletes (Hill et al., 2010). Avoidant coping is another form of coping athletes can engage in, which involves strategies that help the individual distance themselves from the coping process. The avoidant coping strategy emphasizes the refusal to acknowledge the stressor and the reduction in behaviors trying to overcome the stressor. Avoidant coping has been shown to lead to consequences such as experiencing increased anxiety and the development of burnout (Hill et al., 2010).

There is evidence that athletic identity changes over time as a consequence of one's circumstances (Grove et al., 2004). This change in athletic identity due to circumstance has been shown in adolescent female athletes trying out for an all-star team. It was observed that the athletic identity of those who did not make the team decreased while those who made the team showed no increase in their athletic identity. This decrease in athletic identity can partially be explained by the athletes protecting their self-concept. By lowering their athletic identity after not making the team, the athlete reduces their commitment to the sport which may aid in softening the blow of the negative outcome received (Grove et al., 2004).

MacIntyre and colleagues (2017) stated that there is a link between overly strong athletic identity and the public evaluation of performance. They found that feelings of depression in males, including feelings of failure and shame along with the perception

that feelings of depression are unacceptable among those with overly strong athletic identities. These specific feelings have also been shown to be associated with displays of mental toughness. However, they also found that the psychological process of mental toughness can act as a barrier to disclosing feelings and help seeking behavior (MacIntyre et al., 2017). Increased mental health knowledge and openness among the support staff of athletes may aid in alleviating mental health stigma in sport (MacIntyre et al., 2017). Uphill, Sly, and Swain (2016) stated that stigma may be higher among athletes compared to non-athletes due to the culture they are immersed in, which emphasizes mental toughness and diminishes weaknesses. These beliefs may also impact the recognition of mental illness within the athlete population. Barriers to seeking help for psychological difficulties among athletes may include fear of being excluded from their team, the inability to compete, mental health literacy, loss of livelihood, previous negative experiences with help seeking, and loss of athletic identity (Uphill et al., 2016).

Psychological Flexibility

Bond and colleagues (2011) define psychological flexibility as the ability to fully contact the present moment and the thoughts and feelings it contains without defense, and depending on the situation, persisting or changing behavior in the pursuit of goals and values. Levin and colleagues (2013) proposed that psychological flexibility could potentially be a mechanism in stigma reduction (Levin, Luoma, Lillis, Hayes, & Vilardaga, 2013). The process of psychological flexibility as applying to stigma reduction involves flexible awareness of internal experiences in the present moment, defusion from stigmatizing thoughts, willingness to experience stigmatizing thoughts, relating to oneself as separate from thoughts and feelings, identifying valued activity in social interactions,

and committing to engaging in patterns of valued activity. Psychological inflexibility along with experiential avoidance, on the other hand, could potentially play a role in one's perceived stigma. Research has previously found psychological inflexibility and experiential avoidance to be predictive of stigmatizing attitudes towards those with mental health difficulties (Levin et al., 2013).

Levin and colleagues (2014) state that psychological inflexibility, which is the opposite of psychological flexibility, involves rigid dominance of psychological reactions over chosen values in guiding actions. Psychological inflexibility can be defined as a pattern of behavior that is excessively controlled by an individual's thoughts, feelings, and emotions. At the cost of meaningful actions, these negative experiences will be avoided. Psychological inflexibility has been found to be related to many psychological disorders such as mood, anxiety, substance use, eating, and psychotic disorders (Levin et al., 2014). Psychological inflexibility is viewed along a continuum from healthy to impaired regarding functioning as it applies to psychopathology (Levin et al., 2014).

Enacted stigma involves directly experiencing social discrimination such as reduced access to housing, poor support for treatment, and obtaining employment. Enacted stigma has been associated with negative outcomes such as difficulty adjusting socially (Luoma et al., 2007). Individuals with mental illness have previously reported that the fear of stigma is one reason they do not seek treatment. Individuals who have previously sought treatment also have reported higher levels of stigma related rejection. Coping by keeping mental illness a "secret" has been shown to be associated with lower levels of psychological flexibility, lower quality of life, and more internalized shame (Luoma et al., 2007).

Masuda and colleagues (2007) found that individuals with psychological disorders are more stigmatized than those with physical diseases especially when seeking psychological services. Mental health stigma has previously been shown to be associated with the delay, underutilization, and premature termination of mental health treatment. Individuals who engage in avoidant behaviors and are psychologically inflexible may benefit from therapeutic methods (e.g. cognitive behavioral therapy, mindfulness-acceptance-commitment therapy, and acceptance-commitment therapy) that target avoidance of difficult experiences in hopes to reduce stigma. Psychological inflexibility and avoidance have previously been shown to be associated with psychological difficulties.

Student athletes are an at-risk population for a variety of psychological difficulties (Gross et al., 2016). Student athletes, when compared to students who do not participate in athletics, are more likely to experience difficulties with eating disorders and substance use (Gross et al., 2016). Along with the pressure and stress that comes with being a student athlete, around 21 percent of student athletes experience depressive symptoms (Gross et al., 2016). Stressors for student athletes can include managing school work, limited free time, physical demands, coping with injuries, maintaining good relationships with coaches and teammates, and competition (Gross et al., 2016).

The Mindfulness-Acceptance-Commitment (MAC) approach has also shown to be effective when compared to psychological skills training (Gross et al., 2016). In a group of female student athletes, MAC was effective in reducing hostility, emotion dysregulation, and substance use more so than Psychological Skills Training (Gross et al., 2016). After one month, these athletes continued to show significant reductions in

anxiety, unhealthy eating behaviors, overall distress, and increased psychological flexibility. These same athletes also showed improvements in their sport performance (Gross et al., 2016). By experiencing prolonged symptom reduction, these athletes may also then experience prolonged reductions in their perceived stigma.

Purpose and Aim of Current Study

Multiple professional athletes from a variety of sports have spoken out about mental health stigma (Dubinski, 2018; MacMullan, 2018a; MacMullan, 2018b; Ross, 2018; Siegler, 2018; Simmons, 2017 & Watson, 2019). Stigma is associated with various negative consequences such as feelings of shame, lower self-esteem, lower self-efficacy (Corrigan et al., 2010), delayed treatment seeking, and lower quality of life (Luoma et al., 2007). Having a strong athletic identity is associated with benefits such as increased social engagement and costs such as increased risk for experiencing psychological distress (Powell & Myers, 2017). Athletes experience more stigma due to the culture which they are immersed in which emphasizes mental toughness while discouraging showing weakness (Uphill et al., 2016). Interventions that increase psychological flexibility help to decrease mental health stigma (Masuda et al., 2007). Increased psychological flexibility has also been shown to decrease overall distress in student athletes (Gross et al., 2016). Thus, psychological flexibility may play an important role in understanding the relationship between athletic identity and mental illness stigma.

It was hypothesized that a positive relationship exists between athletic identity and mental health stigma. In addition, it was hypothesized that psychological flexibility would moderate this relationship. Specifically, it was predicted that high levels of psychological flexibility would attenuate the relationship between athletic identity and mental health stigma, acting as a protective factor, while controlling for current symptoms of distress and social desirability.

Chapter II: Methodology

Participants

Participants were recruited through sport-related communities on a popular internet website (reddit.com). Permission from community moderators was obtained prior to recruiting in these communities. Community participants who completed the online survey had the option of entering a drawing to win a \$20 gift card. Community participants ages 18 years or older were eligible to complete the survey. The online sample was appropriate for the research question because it provided a broader sample more so than the undergraduate population alone making it capable of capturing a wider range of the degrees of psychological flexibility and athletic identity (Brewer et al., 1993; Levin et al., 2013)

A total of 176 online participants ($N = 176$, 155 males, 19 females) with ages ranging from 18 to 63 ($M = 26.72$, $SD = 8.07$) participated in the study in exchange for a chance to win a \$20 gift card. Demographic analyses revealed that 94.9% of the participants identified as Cisgender, 2.3% identified as Non-binary, and 2.8% identified as other. As for ethnicity, 91.5% indicated that they were not of Hispanic origin while 8.5% indicated that they were of Hispanic origin. Demographic analyses revealed that 77.3% of the sample identified as Caucasian, 3.4% as African American, 1.7% as Native American, 12.5% as Asian/Pacific Islander, 6.3% as Hispanic, and 4.5% as Biracial. The demographic variable for race was dichotomized due to the predominately white sample. The current sample consisted of 71% white and 29% racial and ethnic minorities.

Within the sample 33.5% of the participants reported being diagnosed with a psychological disorder while 66.5% did not. As for current participation in sport, 72.7% of the sample reported currently engaging in sport while 27.3% reported no current sport engagement. The participants in the study consist of mostly athletes. Participants were collected from subreddits which are forums dedicated to specific topics on the website of Reddit. As for collection from subreddits, 7.4% of participants came from r/samplesize, 8.5% came from r/hockeyplayers, 33.5% came from r/cfb (college football), and 50.6% came from r/amateurboxing.

Measures and Materials

Demographics. Participants answered questions about their age, biological sex, gender, year in college, race, ethnicity, and previous experience with mental illness (e.g., knowing someone or being diagnosed with a mental illness). This information was collected in order to inform a demographic description of the sample.

Athletic Identity. *Athletic Identity Measurement Scale* (AIMS) was used to measure participants' level of athletic identity (Brewer et al., 1993). Athletic identity has been defined as the degree to which an individual identifies with the athlete role (Brewer et al., 1993). The AIMS is a 10 item, self-report measure on a seven point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Example questions on the AIMS include "I consider myself an athlete" and "Sport is the most important part of my life" (Brewer et al., 1993). An individual's overall score on the AIMS is obtained by summing the answer to each item. Higher scores on this measure indicate greater identification with the athlete role (Brewer et al., 1993). Brewer and colleagues (1993) found that the AIMS showed excellent internal consistency ($\alpha = .93$) while Grove et al., (2004) found

that the AIMS was positively related to a similar construct that measured the importance of sport competence, showing construct validity. Specifically, higher scores on the AIMS indicating high identification with the athlete role correlated with higher levels of importance of sport competence ($r = .83$; Grove et al., 2004). The current study found the AIMS to have good reliability ($\alpha = .86$).

Psychological Flexibility. The *Acceptance and Action Questionnaire-II* (AAQ-II) was used to assess psychological inflexibility (Bond et al., 2011). The AAQ-II is a seven item self-report measure in which each item is rated on a Likert scale ranging from 1 (*never true*) to 7 (*always true*) (Bond et al., 2011). Examples of items on this measure include “I’m afraid of my feelings” and “Worries get in the way of my success” (Bond et al., 2011; Levin et al., 2014). Higher scores on the AAQ-II indicate increased psychological inflexibility (Bond et al., 2011; Gross et al., 2016). The AAQ-II has been reported to be a reliable measure of psychological inflexibility ($\alpha = .84$). The AAQ-II has also shown adequate test-retest reliability at three and twelve months ($r = .81$ and $r = .79$) (Bond et al., 2011). Levin and colleagues (2014) reported appropriate convergent validity due to the correlation between the AAQ-II and the original AAQ ($r = .97$). Costa, Maroco, Pinto-Gouveia, and Galhardo (2014) reported criterion validity of the AAQ-II by conducting an independent t-test between clinical and non-clinical samples ($t = 63.91$). The current study found the AAQ-II to have excellent reliability ($\alpha = .90$).

Current Symptoms of Distress. The *Depression, Anxiety, and Stress Scale* (DASS-21) was used to measure the extent to which participants have experienced symptoms of depression, anxiety, and stress over the past week (Lovibond & Lovibond, 1995). Lovibond and Lovibond (1995) described that the DASS-21 consists of twenty-

one negative emotional symptoms rated on a four point frequency scale. Scores for each scale are created by summing the scores of the seven relevant items for each subscale and is then multiplied by two. Higher scores on each subscale indicate higher severity of symptoms (Lovibond & Lovibond, 1995). Reilly and Mansell (2010) provided an example statement from the DASS-21 depression subscale, which is “I felt down hearted or blue”. An example item from the anxiety subscale stated “I felt I was close to panic” and an example item from the stress subscale stated “I found it difficult to relax”. The depression ($\alpha = 0.91$), anxiety ($\alpha = 0.84$), and stress ($\alpha = 0.90$) subscales have all be shown to have excellent internal consistency (Lovibond & Lovibond, 1995). Each subscale has also shown to be low-to-moderately correlated with one another: depression and anxiety ($r = 0.42$), anxiety and stress ($r = 0.46$), and depression and stress ($r = 0.39$); indicating that these constructs are related. The anxiety and stress scales have the strongest relationship out of the subscale correlations. The subscales are related to one another but are not so closely related that they cannot stand alone as separate factors. The DASS-21 has been found to be valid in non-clinical populations based on the findings of Henry and Crawford (2005) and Reilly and Mansell (2010). The scores predict general psychological distress (Henry & Crawford, 2005). Overall, the DASS-21 displayed excellent reliability ($\alpha = .94$) in the current study.

Mental Health Stigma and Care Seeking. *Perceived Stigma and Barriers to Care* (PSBC) was used to assess the extent to which perceived public stigma and structural barriers affect an individual’s decision to seek mental health treatment (Stanley, Hom, & Joiner, 2018). Stanley and colleagues (2018) stated that the PSBC is a self-report measure which consists of 11 items. Britt and colleagues (2008) describe that six of the

items in the PSBC were designed to assess perceived stigma while the other five items were designed to assess barriers to care. An example item from the perceived stigma items is “My peers might treat me differently”, while an example item from the barriers to care items is “I don’t know where to get help” (Stanley et al., 2018). Participant’s responses to these items are rated on a five point Likert scale ranging from *strongly disagree* (1) to *strongly agree* (5; Britt et al., 2008; Stanley et al., 2018). Mean scores are taken from each participant’s responses in order to score the PSBC; higher scores indicate increased barriers to care (Stanley et al., 2018). Both the perceived stigma ($\alpha = .82$) and the barriers to care ($\alpha = .70$) subscales showed acceptable reliability (Britt et al., 2008). The perceived stigma ($\alpha = .94$) and the barriers to care ($\alpha = .85$) subscales also showed strong reliability in follow up studies (Britt et al., 2008). Overall, the PSBC scale has been shown to be a valid way to assess stigma based on its use in both college student and military populations (Britt et al., 2008; Dieffenbach & Statler, 2012; & Stanley et al., 2018).

The PSBC has been used in both college student and military populations (Britt et al., 2008). The perception of stigma and barriers to mental health treatment was shown to exacerbate the perception of life stress as well as psychological symptoms in both populations (Britt et al., 2008). Overall, perceived stigma was shown to be the most important in the student population while barriers to care was the most important to the military population (Britt et al., 2008). Dieffenbach and Statler (2012) stated that the PSBC has been used in military populations, this shows a strength of the measure since athletic identity has also previously been observed in military populations (Britt et al., 2008). These findings also show that there are similarities between athletes and military

veterans further suggesting that the PSBC measure was appropriate to use within an athletic community population. The stigma subscale displayed good reliability ($a = .88$) while the barriers to care subscale displayed acceptable reliability ($a = .73$) in the present study.

Social Desirability. *Marlowe Crowne Social Desirability Scale – Short Form* (MCSDS) was used to assess the influence social desirability may have on the other self-report measures (Reynolds, 1982). According to Reynolds (1982), the MCSDS short form consists of 13 true or false items. Example items on this measure include “I sometimes feel resentful when I don’t get my way” and “I am sometimes irritated by people who ask favors of me” (Reynolds, 1982). The short-form being used is form C, which has been shown to be an appropriate substitute for the original scale (Reynolds, 1982).

Overall, this form has been shown to have acceptable internal consistency ($a = .76$; Reynolds, 1982). This form has also shown adequate test-retest reliability ($r = .74$). As for validity, concurrent validity has been shown based on the correlation between this short form and the original scale ($r = .93$; Reynolds, 1982). Leite and Beretvas (2005) concluded that the MCSDS-short form is valid due to its dichotomy with the Balanced Inventory of Desirable Responding which measures a similar construct. Unlike previous reports, the MCSDS displayed questionable reliability in the present study ($a = .66$).

Procedure

Participants from the online sample were able to access the study through a link posted in various reddit.com communities. Participants were first asked to provide informed consent in order to complete the study. Once informed consent was obtained,

participants were asked to complete the AIMS, AAQ-II, DASS-21, PSBC, and the MCSDS. Participants then completed demographic questions and were debriefed regarding the current study. Lastly, participants received any earned experimental incentives.

Chapter III: Results

In the current study, analyses were conducted using SPSS version 25. All measures used were first scored then assessed for normality, linearity, and outliers in order to test for assumptions. Linearity was confirmed and no multivariate or univariate outliers were identified. Participants who answered less than three of the four attention check questions were to be removed from the dataset. However, no participants were removed from the dataset due to failing the attention check questions as 94.3% answered all four correctly and 5.7% answered three out of four correctly. A total of 376 potential participants gave informed consent and were screened. After screening, a total of 176 participants who had fully completed all study measures remained. Two-hundred participants were removed from the dataset due to lack of completion of the survey. Previous research conducted by Ward, Meade, Allred, Pappalardo, and Stoughton (2017) found mid-study attrition rates to be around thirteen percent. Pearson correlations were used to assess the relationships between the key study variables and the demographic variable of age. Point biserial correlations were conducted to assess the relationships between the remaining demographic variables. Significant predictors of mental health stigma and barriers to care identified by the correlations were added into the models as covariates along with social desirability and current symptoms of distress. Hayes Model 1 (Hayes, 2017) in PROCESS version 3.3 was used to test the moderating role of psychological flexibility between athletic identity and mental health stigma. The predictor variable was athletic identity, the moderating variable was psychological

flexibility, and the dependent variable was mental health stigma. The athletic identity and psychological flexibility variables were mean centered prior to analysis allowing for meaningful interpretation. Hayes Model 1 (Hayes, 2017) in PROCESS version 3.3 was also used to test the moderating role of psychological flexibility between athletic identity and barriers to care. The predictor variable was athletic identity, the moderating variable was psychological flexibility, and the dependent variable was barriers to care. The independent and moderator variables were again mean centered for meaningful interpretation. A G Power analysis revealed that 77 participants would be needed in order to detect a medium effect size in the moderation model. The present study successfully recruited 376 potential participants retaining 176 for analysis, indicating that the study was adequately powered. See Table 1 for means, standard deviations, and correlations between the study variables. See Table 2 for correlations between the dependent variables (i.e., mental health stigma and barriers to care) and demographic variables.

A moderated regression was conducted to test the hypothesis that psychological flexibility would moderate the relationship between athletic identity and mental health stigma. Biological sex assigned at birth and previous diagnosis of a psychological disorder were added in as covariates along with social desirability and current symptoms of distress. Social desirability and current symptoms of distress were planned covariables within the hypothesis. Biological sex assigned at birth and previous diagnosis of a psychological disorder were added into the model because they showed to be zero order predictors of mental health stigma (see Table 2). The overall model was significant $R^2 = .27$, $F(7, 166) = 8.59$, $p < .001$, and accounted for 26.6% of the variance of mental health stigma. The overall model, conditional effects, and interaction term are presented in

Table 3. The interaction term between athletic identity and psychological flexibility was not significant, indicating that psychological flexibility did not significantly moderate the relationship between athletic identity and mental health stigma $F(1,166) = .00, p = .96$. These results show that psychological flexibility was a significant conditional predictor of mental health stigma. In particular, greater levels of psychological inflexibility predicted greater mental health stigma.

A second exploratory moderated regression was conducted to test if psychological flexibility would moderate the relationship between athletic identity and barriers to care. Social desirability and current symptoms of distress were included as covariates within the exploratory research question as they were included as planned covariates with the primary research question. Age and current engagement in sport were added into the model as covariates because they showed to be zero order predictors of barriers to care (see Table 2). The overall model was significant $R^2 = .15, F(7, 166) = 4.12, p < .001$, and accounted for 14.81% of the variance in barriers to care. The overall model, conditional effects, and interaction term are shown in Table 4. The interaction term between athletic identity and psychological flexibility was not significant, indicating that psychological flexibility did not moderate the relationship between athletic identity and barriers to care $F(1,166) = .04, p = .83$. The results showed that current participation in sport was a significant conditional predictor of barriers to care with greater sport participation predicting fewer barriers to care.

Table 1

Means, standard deviations, and correlations between study variables (N = 176)

	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>M</i>	<i>SD</i>	<i>Range</i>
<i>1. AIMS (Athletic Identity Measurement Scale)</i>	---	.097	.111	.190*	.035	.036	40.05	11.68	10.00 – 65.00
<i>2. AAQ-II (The Acceptance and Action Questionnaire-II)</i>		---	.788**	.281**	.285**	-.277**	24.01	9.24	7.00 – 48.00
<i>3. DASS-21 (The Depression, Anxiety, and Stress Scale)</i>			---	.263**	.303**	-.315**	18.95	12.34	.00 – 58.00
<i>4. PSBC-Stigma (Perceived Stigma and Barriers to Care)</i>				---	.224**	-.136	2.38	.93	1.00 – 4.83
<i>5. PSBC-Barriers (Perceived Stigma and Barriers to Care)</i>					---	-.051	2.71	.94	1.00 – 4.80
<i>6. MCSDS (Marlowe Crowne Social Desirability Scale – Short Form)</i>						---	5.61	2.80	.00 – 13.00

* $p < .05$. ** $p < .01$.

Table 2

Correlations between the dependent variables and demographic variables (N = 176)

	<i>PSBC-Stigma (Perceived Stigma and Barriers to Care)</i>	<i>PSBC-Barriers (Perceived Stigma and Barriers to Care)</i>
<i>Age</i>	-.071	-.162*
<i>Biological Sex assigned at birth (Male = 1)</i>	.231**	-.018
<i>Race (White = 1)</i>	-.042	-.091
<i>Have you ever been diagnosed with a psychological disorder? (Yes = 1)</i>	-.250**	-.095
<i>Have you ever been treated for a psychological disorder? (Yes = 1)</i>	-.174*	-.065
<i>Has a friend or family member ever been diagnosed or treated for a psychological disorder? (Yes = 1)</i>	-.142	.021
<i>Do you currently play any sports? (Yes = 1)</i>	.008	-.198**

Note. Point biserial correlations were used to assess the relationship between every demographic variable and the dependent variables except for age. Pearson correlations were used to assess the relationships between age and the dependent variables.

* $p < .05$. ** $p < .01$.

Table 3. Overall Model 1 and interaction effect predicting mental health stigma (N = 176)

	<i>B</i>	<i>SE</i>	<i>t</i>	<i>p</i>
Intercept	2.22	.30	7.36	<.001
Athletic Identity (AIMS)	.01	.01	1.43	.16
Psychological Inflexibility (AAQ-II)	.03	.01	2.83	.01
Athletic Identity X Psychological Flexibility	.00	.00	-.05	.96
Current Symptoms of Distress (DASS-21)	.01	.01	.74	.46
Social Desirability (MCSDS)	-.03	.02	-1.21	.23
Biological Sex	.47	.21	2.31	.02
Diagnosed Psychological Disorder	-.65	.14	-4.56	<.001

Note. AIMS = Athletic Identity Measurement Scale, AAQ-II = Acceptance and Action Questionnaire – II, DASS-21 = Depression, Anxiety, and Stress Scale – 21, MCSDS = Marlowe Crowne Social Desirability Scale

Table 4. Overall exploratory Model 2 and interaction effect predicting barriers to care (N = 176)

	<i>B</i>	<i>SE</i>	<i>t</i>	<i>p</i>
Intercept	3.08	.37	8.25	<.001
Athletic Identity (AIMS)	.01	.01	1.29	.20
Psychological Flexibility (AAQ-II)	.01	.01	1.01	.32
Athletic Identity X Psychological Flexibility	.00	.00	.21	.83
Current Symptoms of Distress (DASS-21)	.01	.01	1.40	.16
Social Desirability (MCSDS)	.02	.03	.72	.47
Age	-.01	.01	-1.53	.13
Current Sport Participation	-.49	.19	-2.61	.01

Note. AIMS = Athletic Identity Measurement Scale, AAQ-II = Acceptance and Action Questionnaire – II, DASS-21 = Depression, Anxiety, and Stress Scale – 21, MCSDS = Marlowe Crowne Social Desirability Scale

Chapter IV: Discussion

As predicted, there was a significant positive relationship between athletic identity and mental health stigma. This supports the theory that stigma may be higher among athletes due to their culture which emphasizes toughness and diminishes weakness (Uphill et al., 2016). Psychological flexibility was positively related to mental health stigma. This suggests that the more psychologically inflexible an individual the more mental health stigma they experience. This supports previous research which states that psychological inflexibility is related to an individual's perceived stigma (Levin et al., 2013). Psychological flexibility was not correlated with athletic identity. This does not support the hypothesis and could mean that athletes are using different strategies of coping with mental health stigma such as performing mentally tough behaviors (e.g., responding well to difficult situations) or problem focused coping (Coulter et al., 2017; Hill et al., 2010). Current symptoms of distress and mental health stigma also showed a positive relationship. This is consistent with previous research that shows stigma involves feelings of shame, anxiety, and grief within an individual (Reeder & Pryor, 2008).

The primary moderation model evaluating the moderating effect of psychological flexibility on the relationship between athletic identity and mental health stigma was significant; however, psychological flexibility did not significantly moderate the

relationship. This could be due to the lack of a significant relationship between athletic identity and psychological flexibility. Previous research has shown effectiveness in psychological flexibility interventions within athletic populations (Gross et al., 2016). The lack of a relationship between athletic identity and psychological flexibility could be due to the limited use of psychological flexibility interventions used within athletic populations. The lack of this relationship could also be due to the use of psychological skills training with athletes instead of interventions which would introduce athletes to psychological flexibility (Gross et al., 2016). The lack of this relationship could also mean that athletes are no different from the general population regarding the construct of psychological flexibility. Psychological flexibility, previous diagnosis of a psychological disorder, and biological sex all remained significant predictors of mental health stigma within the model. Biological sex showed a positive relationship with mental health stigma. Suggesting that biological males experience more stigma than biological females. This supports Chandra and Minkovitz (2006) finding that males report higher mental health stigma than females. A negative relationship was found between mental health stigma and a previous diagnosis of a psychological disorder. This suggests that those with a previous diagnosis of a psychological disorder experience less stigma. This finding is inconsistent with previous research which found that individuals with mental illness may conceal their diagnosis in order to prevent being stigmatized (Reeder & Pryor, 2008). However, this does support the findings that individuals with a previous diagnosis who use appropriate coping skills show reduced levels of stigma (Corrigan et al., 2010).

A second exploratory moderation model tested if psychological flexibility moderated the relationship between athletic identity and barriers to care. The overall

model was significant, however psychological flexibility did not moderate the relationship between athletic identity and barriers to care. The lack of moderation could be due to the lack of a significant relationship between athletic identity and psychological flexibility as well as barriers to care. Current sport participation was the only significant predictor of barriers to care within the model. This suggests that if an individual currently plays sports they report less barriers to care. This supports Patel and colleagues (2013) research which states that adults with lower physical activity levels report increased barriers to care, and suggests that sport participation may serve as a protective factor by increasing care seeking behavior. According to Gulliver, Griffiths, and Christensen (2012), athletes seeking care is facilitated by factors such as support and positive attitudes of their coach and teammates as well as relationships and positive interactions with providers.

While no other conditional predictors were significant in the moderation model, exploratory analyses of zero order correlations between barriers to care and study variables are worthy of discussion. Psychological flexibility and barriers to care showed a positive relationship, suggesting that the more psychologically inflexible an individual is the more barriers to care they identify. This finding is consistent with previous research which states that individuals who are psychologically inflexible use avoidant coping strategies, which can act as a barrier to care (Masuda et al., 2007). Barriers to care was positively correlated with current symptoms of distress. This finding suggests that the more symptoms of distress an individual is experiencing the more barriers to care they identify. This supports previous research which states that an individual's attitudes and behaviors can act as barriers to care (Corrigan et al., 2014). These attitudes and behaviors

are identified as personal barriers to care. They can be derived from the stigma an individual perceives, which can lead to avoidance of treatment and affect their attitudes towards care (Corrigan et al., 2014). Those attitudes and behaviors can also consist of feelings such as anxiety and grief (Reeder & Pryor, 2008). Barriers to care showed a negative relationship with age. This finding suggests that the older an individual the less barriers to care they identify. This supports the previous finding that younger adults are less likely to use treatment services than older adults (Corrigan et al., 2014).

Applied Implications

Within the current study psychological flexibility was found to be related to current symptoms of distress, barriers to care, and mental health stigma. Its relationship with these variables makes it an ideal target for interventions which promote psychological flexibility. By increasing psychological flexibility symptoms of depression, anxiety and stress; barriers to care; and mental illness stigma will hopefully decrease. According to Kuyken and colleagues (2017), mindfulness training programs have been used to improve functioning with mental health difficulties, difficulties managing emotions, interpersonal relationships, academic settings, sleep, and athletes. Mindfulness training involves consistent practice focusing one's attention in an intentional manner while a distraction is present. Mindfulness training has previously targeted intrusive thoughts, rumination, and behavioral impulses. Mindfulness training is learned experientially through practices which focus on one's breath, body, and experiences. The hope of mindfulness training is to enhance overall wellbeing and mental health through increasing psychological flexibility (Kuyken et al., 2017). Acceptance and Commitment Therapy also targets psychological flexibility and has been shown to reduce individual's

believability of stigmatizing thoughts (Levin et al., 2013). Acceptance and Commitment Therapy (ACT) has been shown to influence problematic avoidance and the impact negative thoughts and feelings have on an individual in relation to stigma. One way in which ACT has influenced stigma is by changing an individual's believability of stigmatizing attitudes. ACT has also been able to reduce an individual's stigmatizing attitudes despite the individual's level of psychological inflexibility (Masuda et al., 2007). Moore (2009) discusses how the Mindfulness-Acceptance-Commitment (MAC) approach has been used in interventions within sport psychology in order to enhance athletic performance and psychological wellbeing. The MAC approach promotes developing skills of nonjudgmental mindful awareness, attention, and acceptance in the pursuit of valued goals. Within a sample of high level competitive athletes after the MAC intervention showed enhancements in attention and competitive performance (Moore, 2009). MAC has also been shown to increase self and coach ratings on practice intensity, awareness, and overall performance (Moore, 2009).

The current study also found a significant relationship between athletic identity and stigma. This relationship could potentially have important implications for those with disabilities who participate in sport. Individuals with acquired physical disabilities tend to report lower levels of athletic identity when compared to those in the general population (Powell & Myers, 2017). As of 2014, in Canada it was shown that three percent of individuals with disabilities participate in sport as opposed to thirty percent of Canadians in the general population (Powell & Myers, 2017). However, within the population of those with disabilities, a positive relationship between participation in sport and athletic identity has been found (Powell & Myers, 2017). Pudaruth, Gunpath, and Singh (2017)

stated that according to the World Disability report in 2011, there are around one billion people in the world who have a disability. Disability has previously been defined as a long-term physical, mental, intellectual, or sensory impairment which may hinder an individual's full and effective participation in society on an equal basis with others. Individuals with disabilities are often subject to discrimination and stigma (Pudaruth et al., 2017). Ross and colleagues (2016) state that participation in physical activities is a critical component of development and health for disabled children. Participation in physical activity for children with disabilities may offset the risk these children have for developing secondary health complications (Ross et al., 2016). According to Rubin and colleagues (2014) it is recommended that children with disabilities participate in moderate physical activity for at least sixty minutes a day. This participation has also shown to be associated with lower levels of depression and anxiety along with higher rated quality of life (Rubin et al., 2014). Previous research has shown that the number of sports a child with a disability engages in is associated with their degree of functional impairment (Ross et al., 2016).

Previous research has suggested that athletic identity can even be lost after acquiring a physical disability, especially when the culture views adapted sport as not real sport (Perrier et al., 2014). Foreclosure of a future in the sport domain has been shown to be associated with negative views about one's body following an injury. Even after injury, disabled athletes base their athletic identity off of their previous physical functioning. However, disabled athletes did believe that their athletic identity could be restored if they were to change their behavior in the future in order to be consistent with their previous athletic identity. These changes in behavior would involve trying a new

sport or participating in the adapted version of the same sport they played prior to acquiring their disability. Sharing these experiences with other athletes creates a sense of belonging with a group, which helps motivate these individuals to continue their sport participation and in turn helping redevelop their athletic identity following injury (Perrier et al., 2014). Being immersed in sport culture can provide Paralympic athletes with a sense of escape from their disability through engaging in a highly satisfying and valued activity (Powell & Myers, 2017). Athletic identity has been observed in injured military veterans who are now participating in Paralympic sport (Dieffenbach & Statler, 2012). The foundation for current disability sport was originally created as a rehabilitation protocol for injured military veterans (Dieffenbach & Statler, 2012). As of 2010 the United States Census Bureau indicated that there were 5.5 million military veterans who had acquired a disability after a service-related injury. A portion of these individuals are also rediscovering sport through competing in Paralympic sport. These athletes have reported that engaging in sport has provided them with positive benefits such as improved physical well-being, increased social opportunities, feelings of empowerment, increased self-esteem, and increased levels of athletic identity (Dieffenbach & Statler, 2012).

Limitations

One major limitation of the current sample was that it consisted of mostly athletes with higher levels of athletic identity than the general population. These higher levels are observable when comparing the mean score for the AIMS in the current study ($M = 40.05$) to the mean score of the AIMS within a college student population ($M = 31.09$; Brewer et al., 1993). By collecting mostly from athletes, the general population was not

widely present within the dataset. It is important to include more than just athletes in the sample in order to collect a wider range of athletic identity scores. A wider range of athletic identity scores would be more representative of the general population which consists of athletes and non-athletes. Another limitation is that the sample contained mostly male participants. Due to the majority of participants being male the results of the study mainly apply to males who are highly involved in sport. By having more female participants in the sample a broader spectrum of athletic identity may have been provided. According to the American Psychiatric Association (2013) females are more likely to experience a wide range of psychological disorders such as common mood and anxiety disorders. By having more females in the study, a wider range of previous diagnoses and current symptoms of distress may have been collected further making the sample more representative of the general population. A limitation within the current study was that 200 potential participants were removed from the dataset due to not completing the survey. This level of attrition is greater than previous online studies have shown (Ward et al., 2017). This level of attrition could be due to differences in participants who complete and those who do not complete the survey. Differences on key variables would be useful to observe in future studies in order to assess how a studies research question may affect attrition levels.

Another limitation of the current study is the low reliability of the Marlowe Crowne social desirability scale. This could potentially be due to the fact that the measure was created in the 1980's. The construct of social desirability from the past could be a different construct today. A more modern measure of social desirability such as the Balanced Inventory of Desirable Responding short form (BIDR-16) developed by Hart,

Ritchie, Hepper, and Gebauer (2015) would be more appropriate for future research. Another limitation within the current study is that the sample was all 18 years or older therefore not representing younger individuals' mental health experiences. A final limitation was that stigma and barriers to care were subscales of one measure instead of coming from their own full scales. Clement and colleagues (2012) created the Barriers to Access to Care Evaluation Scale which measures key barriers to access mental health care. King and colleagues (2007) developed a standardized measure for mental illness stigma called the Stigma Scale. Both the Barriers to Access to Care Evaluation Scale and the Stigma Scale are individual measures of barriers to care and mental health stigma which would be useful for future research to capture their full constructs.

Future Directions

A future direction of this study would be to test the moderating role of psychological flexibility within the relationship between athletic identity and mental health stigma as well as barriers to care within clinical and high school populations. Barriers to care and athletic identity could potentially play important roles in a high school population. According to Patel, Flisher, Hetrick, and McGorry (2007) most mental disorders begin between the ages of 12 and 24. Poor mental health during this age frame is related to lower educational achievements (Patel et al., 2007). An increase in depression rates as well as conduct problems have been observed during youth (Patel et al., 2007). High school populations would also be important to focus on due to onset of mental disorders, the increase in depression rates, and the negative consequences associated with these difficulties occurring during this age period (Patel et al., 2007). Future studies could examine changes in the relationship between athletic identity and

mental health stigma as well as barriers to care through an experimental design randomly assigning participants to different psychological flexibility interventions. Changes in mental health stigma and barriers to care could be observed before and after the psychological flexibility interventions are introduced.

A longitudinal design in an athlete's only sample could show how athletic identity changes over time. Changes in its relationships with other variables such as barriers to care, mental health stigma, and current symptoms of distress could also be observed over time. This future study could begin by recruiting high school athletes in their freshman year. Measures of athletic identity, symptoms of distress, stigma, and barriers to care could be collected twice a year during the sport season and during the off season. The same cohort could be followed over time in order to observe changes in these constructs as participant's age and quit playing sports or as they continue to play in college or professionally. This study could possibly show how athletic identity and mental health stigma interact overtime. Better measures of distress could also be used in the future in hopes to better measure the influence symptoms related to specific diagnoses could negatively affect an individual. First (2014) developed the Structured Clinical Interview for the DSM (SCID) in order to assess commonly occurring psychological disorders. The SCID could be a better instrument to use when assessing distress related to disorders in future studies.

Conclusions

The present research shows that psychological flexibility plays an important role in mental health stigma and barriers to care among a sample of predominantly male athletes. Although the results did not show the moderating effect of psychological

flexibility on athletic identity and these outcomes, psychological flexibility was still related to current symptoms of distress, mental health stigma, and barriers to care.

Interventions which promote psychological flexibility could be useful in athletic populations in hopes to reduce the stigma athletes may experience on and off the field.

Appendix I: Demographics

Age:

Biological sex assigned at birth (circle one): Male Female Prefer not to say

Gender: Cisgender Non-binary Other/prefer to self-describe

Year in college (circle one): Freshman Sophomore Junior Senior

Ethnicity: Hispanic Origin Non-Hispanic Origin

Race (select all that apply): Caucasian African American

Native American Asian/Pacific Islander Hispanic Biracial

Other (please specify):

Have you ever been diagnosed with a psychological disorder? Yes No

Have you ever been treated for a psychological disorder? Yes No

Has a friend or family member ever been diagnosed with or treated for a
psychological disorder? Yes No

Appendix II: IRB Approval Letter



Institutional Review Board

328 Wells Hall
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TO: Michael Bordieri, Psychology

FROM: Jonathan Baskin, IRB Coordinator *JB*

DATE: 5/3/2019

RE: Human Subjects Protocol I.D. – IRB # 19-148

The IRB has completed its review of your student's Level 1 protocol entitled *Flexibility in the Brain and Muscles*. After review and consideration, the IRB has determined that the research, as described in the protocol form, will be conducted in compliance with Murray State University guidelines for the protection of human participants.

The forms and materials that have been approved for use in this research study are attached to the email containing this letter. These are the forms and materials that must be presented to the subjects. Use of any process or forms other than those approved by the IRB will be considered misconduct in research as stated in the MSU IRB Procedures and Guidelines section 20.3.

Your stated data collection period is from 5/3/2019 to 5/2/2020.

If data collection extends beyond this period, please submit an Amendment to an Approved Protocol form detailing the new data collection period and the reason for the change.

This Level 1 approval is valid until 5/2/2020.

If data collection and analysis extends beyond this date, the research project must be reviewed as a continuation project by the IRB prior to the end of the approval period, 5/2/2020. You must reapply for IRB approval by submitting a Project Update and Closure form (available at murraystate.edu/ibrb). You must allow ample time for IRB processing and decision prior to your expiration date, or your research must stop until such time that IRB approval is received. If the research project is completed by the end of the approval period, then a Project Update and Closure form must be submitted for IRB review so that your protocol may be closed. It is your responsibility to submit the appropriate paperwork in a timely manner.

The protocol is approved. You may begin data collection now.

**Opportunity
afforded**

murraystate.edu

Bibliography

- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders (DSM-5)*. Washington, DC: American Psychiatric Publications
- A Watson. (2019, January 11). Instagram Post. [web log comment] Retrieved from https://www.instagram.com/p/BsgCZE-h5Sg/?utm_source=ig_share_sheet&igshid=1pt61w4xbpftb
- Bond, F. W., Hayes, S. C., Baer, R. A., Carpenter, K. M., Guenole, N., Orcutt, H. K., ... Zettle, R. (2011). Preliminary psychometric properties of the acceptance and action questionnaire-II: a revised measure of psychological inflexibility and experiential avoidance. *Behavior Therapy, 42*(4), 676-688.
doi:10.1016/j.beth.2011.03.007
- Brewer, B. W., Van Raalte, J. L., & Linder, D. E. (1993). Athletic identity: Hercules' muscles or Achilles heel? *Int. J. Sport Psychology.*, 24,237-254.
- Britt, T. W., Greene-Shorridge, T. M., Brink, S., Nguyen, Q. B., Rath, J., Cox, A. L., ... Castro, C. A. (2008). Perceived stigma and barriers to care for psychological treatment: implications for reactions to stressors in different contexts. *Journal of Social and Clinical Psychology, 27*(4), 317-335.
<https://doi.org/10.1521/jscp.2008.27.4.317>
- Chandra, A., & Minkovitz, C. S. (2006). Stigma starts early: Gender differences in teen willingness to use mental health services. *Journal of adolescent health, 38*(6), 754-e1.

- Clement, S., Brohan, E., Jeffery, D., Henderson, C., Hatch, S. L., & Thornicroft, G. (2012). Development and psychometric properties the Barriers to Access to Care Evaluation scale (BACE) related to people with mental ill health. *BMC psychiatry*, *12*(1), 36.
- Corrigan, P. W., Druss, B. G., & Perlick, D. A. (2014). The impact of mental illness stigma on seeking and participating in mental health care. *Psychological Science in the Public Interest*, *15*(2) 37-70. doi: 10.1177/1529100614531398
- Corrigan, P. W., Morris, S., Larson, J., Rafacz, J., Wassel, A., Michaels, P., ... Rusch, N. (2010). Self-stigma and coming out about one's mental illness. *Journal of Community Psychology* *38*(3), 259-275. doi: 10.1002/jcop.20363
- Costa, J., Maroco, J., Pinto-Gouveia, J., & Galhardo, A. (2014). Validation of the psychometric properties of acceptance and action questionnaire-II in clinical and nonclinical groups of Portuguese population. *International Journal of Psychology and Psychological Therapy*, *14*(3), 353-364.
- Coulter, T. J., Mallett, C. J., & Singer, J. A. (2017). A three – domain personality analysis of a mentally tough athlete. *European Journal of Personality, Eur. J. Pers.*,*32*(1), 6-29. doi: 10.1002/per.2129
- Dieffenbach, K. D., & Statler, T. A. (2012). More similar than different: the psychological environment of Paralympic sport. *Journal of Sport Psychology in Action*, *3*(2), 109-118. doi: 10.1080/21520704.2012.683322

Dubinski, M. (2018), The Spurs and the mental challenges of NBA players. Today's NBA News PTR Daily. Retrieved from

<https://www.poundingtherock.com/2018/8/23/17772826/the-spurs-and-the-mental-challenges-of-nba-players>

First, M. B. (2014). Structured clinical interview for the DSM (SCID). *The encyclopedia of clinical psychology*, 1-6.

Gross, M., Moore, Z. E., Gardner, F. L., Wolanin, A. T., Pess, R., & Marks, D. R. (2016). An empirical examination comparing the mindfulness-acceptance-commitment approach and psychological skills training for the mental health and sport performance of female student athletes. *International Journal of Sport and Exercise Psychology*, 16(4), 431-451. doi:10.1080/1612197X.2016.1250802

Grove, J. R., Fish, M., & Eklund, R. C. (2004). Changes in athletic identity following team selection: self-protection versus self-enhancement. *Journal of Applied Sport Psychology*, 16(1), 75-81. doi: 10.1080/10413200490260062

Gulliver, A., Griffiths, K. M., & Christensen, H. (2012). Barriers and facilitators to mental health help-seeking for young elite athletes: a qualitative study. *BMC psychiatry*, 12(1), 157.

Hart, C. M., Ritchie, T. D., Hepper, E. G., & Gebauer, J. E. (2015). The balanced inventory of desirable responding short form (BIDR-16). *Sage Open*, 5(4), doi:2158244015621113.

Hayes, A. F. (2017). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. Guilford Publications.

- Henry, J. D., & Crawford, J. R. (2005). The short-form version of the Depression Anxiety Stress Scales (DASS-21): Construct validity and normative data in a large non-clinical sample. *British journal of clinical psychology*, *44*(2), 227-239
- Hill, A. P., Hall, H. K., & Appleton, P. R. (2010). Perfectionism and athlete burnout in junior elite athletes: the mediating role of coping tendencies. *Anxiety, Stress, and Coping*, *23*, 415-430. Retrieved from <http://dx.doi.org/10.1080/10615800903330966>
- King, M., Dinos, S., Shaw, J., Watson, R., Stevens, S., Passetti, F., ... & Serfaty, M. (2007). The Stigma Scale: development of a standardised measure of the stigma of mental illness. *The British Journal of Psychiatry*, *190*(3), 248-254.
- Kumnig, M., Schnitzer, M., Beck, T. N., Mitmansgruber, H., Jowsey, S. G., Kopp, M., & Rumpold, G. (2014). Approach and avoidance motivations predict psychological well-being and affectivity of volunteers at the Innsbruck 2008 winter Special Olympics. *International Society for Third-Sector Research*, *26*:801-822. doi: 10.1007/s11266-014-9462-1
- Kuyken, W., Nuthall, E., Byford, S., Crane, C., Dalgleish, T., Ford, T., ... & Williams, J. M. G. (2017). The effectiveness and cost-effectiveness of a mindfulness training programme in schools compared with normal school provision (MYRIAD): study protocol for a randomised controlled trial. *Trials*, *18*(1), 194.

- Leite, W. L., & Beretvas, S. N. (2005). Validation of scores on the marlowe-crowne social desirability scale and the balanced inventory of desirable responding. *Educational and Psychological Measurement, 65*(1), 140-154. doi: 10.1177/0013164404267285
- Levin, M. E., Luoma, J. B., Lillis, J., Hayes, S. C., & Vilaradaga, R. (2013). The acceptance and action questionnaire – (AAQ-S): developing a measure of psychological flexibility with stigmatizing thoughts. *Journal of Contextual Behavioral Science, 3*(1), 21-26. Retrieved from <http://dx.doi.org/10.1016/j.jcbs.2013.11.003>
- Levin, M. E., MacLane, C., Daflos, S., Seeley, J., Hayes, S. C., Biglan, A., & Pistorello, J. (2014). Examining psychological inflexibility as a transdiagnostic process across psychological disorders. *Journal of Contextual Behavioral Science, 3*(3): 155-163. doi:10.1016/j.jcbs.2014.06.003
- Loganathan, S., & Murthy, R. S. (2015), Tranquilizing stigma: identifying advocacy interventions based on subjective experiences of stigma among people with schizophrenia. *Indian J Soc Psychiatry, 31*(2): 88-99.
- Lovibond, P. F., & Lovibond, S. H. (1995). The structure of negative emotional states: comparison of the depression anxiety stress scales (DASS) with the Beck depression and anxiety inventories. *Behaviour Research and Therapy, 33*(3), 335–343. doi:10.1016/0005-7967(94)00075-u

Luoma, J. B., Twohig, M. P., Waltz, T., Hayes, S. C., Roget, N., Padilla, M., & Fisher, G. (2007). An investigation of stigma in individuals receiving treatment for substance abuse. *Addictive Behaviors*, 32;1331-1346.

DOI:10.1016/j.addbeh.2006.09.008

MacIntyre, T. E., Jones, M., Brewer, B. W., Van Raalte, J., O'Shea, D., & McCarthy, P. J. (2017). Editorial: mental health challenges in elite sport: balancing risk with reward. *Front. Psychology*, 8, 1892. doi: 10.3389/fpsyg.2017.01892

MacMullan, J. (2018a), The courageous fight to fix the NBA's mental health problem. ESPN. Retrieved from

http://www.espn.com/nba/story/_/id/24382693/jackie-macmullan-kevin-love-paul-pierce-state-mental-health-nba

MacMullan, J. (2018b), To medicate or not? The thorny mental health issue in the NBA. ESPN. Retrieved from

http://www.espn.com/nba/story/_/id/24383926/jackie-macmullan-ocd-adhd-medication-marijuana-nba-mental-health

Masuda, A., Hayes, S. C., Fletcher, L. B., Seignourel, P. J., Bunting, K., Twohig, M. P., & Lillis, J. (2007). The impact of acceptance and commitment therapy versus education on stigma toward people with psychological disorders. *Psychology Faculty Publications*, 98, Retrieved from

https://scholarworks.gsu.edu/psych_facpub/98

- Meggs, J., Ditzfeld, C., & Golby, J. (2014). Self-concept organisation and mental toughness in sport. *Journal of Sports Sciences*, 32(2), 101-109, doi:10.1080/02640414.2013.812230
- Moore, Z. E. (2009). Theoretical and empirical developments of the mindfulness-acceptance-commitment (MAC) approach to performance enhancement. *Journal of clinical sports psychology*, 4, 291-302.
- Newberry, P. (2018), Michael Phelps opens up about his struggles with mental health. Boston.com. Retrieved from <https://www.boston.com/sports/olympics/2018/05/22/michael-phelps-depression-mental-health>
- Patel, A., Schofield, G. M., Kolt, G. S., & Keogh, J. W. (2013). Perceived barriers, benefits, and motives for physical activity: two primary-care physical activity prescription programs. *Journal of aging and physical activity*, 21(1), 85-99.
- Patel, V., Flisher, A. J., Hetrick, S., & McGorry, P. (2007). Mental health of young people: a global public-health challenge. *The Lancet*, 369(9569), 1302-1313.
- Perrier, M. J., Strachan, S. M., Smith, B., & Latimer-Cheung, A. E. (2014). Narratives of athletic identity after acquiring a permanent physical disability. *Adapted Physical Activity Quarterly*, 31(2), 106-124. <http://dx.doi.org/10.1123/apaq.2012-0076>
- Powell, A. J., & Myers, T. D. (2017). Developing mental toughness: lessons from Paralympians. *Front. Psychology*. 8, 1270. doi:10.3389/fpsyg.2017.01270

- Pudaruth, S., Gunpath, R. P., & Singh, U. G. (2017). Forgotten, excluded or included? Students with disabilities: A case study at the University of Mauritius. *African Journal of Disability*, 6(0), a359. <https://doi.org/10.4102/ajod.v6i0.359>
- Reeder, G. D., & Pryor, J. B. (2008). Dual psychological processes underlying public stigma and the implications for reducing stigma. In: *Medicine, Mental Health, Science, Religion, and Well-being, Mens sana monographs*, 6(1), 175-186.
- Reilly, E. S., & Mansell, W. (2010). The relationship between the experience of mood symptoms, expectancy judgement, and a person's current concern. *The Cognitive Behaviour Therapist*, 3:81-94. doi: 10.1017/S1754470X10000085
- Reynolds, W. M. (1982). Development of reliable and valid short forms of the Marlowe-Crowne social desirability scale. *Journal of Clinical Psychology*, 38(1), 119-125.
- Ross, F. (2018, May 4). Missy Franklin shares her story, knocking down mental health stigma. Retrieved from <https://www.mentalhealthfirstaid.org/external/2018/05/missy-franklin-shares-her-story-knocking-down-mental-health-stigma/>
- Ross, S. M., Bogart, K. R., Logan, S. W., Case, L., Fine, J., & Thompson, H. (2016). Physical activity participation of disabled children: A systematic review of conceptual and methodological approaches in health research. *Frontiers in Public Health*, 4,187. doi:10.3389/fpubh.2016.00187

Rubin, D. A., Wilson, K. S., Wiersma, L. D., Weiss, J. W., & Rose, D. J. (2014).

Rationale and design of active play@ home: a parent-led physical activity program for children with and without disability. *BMC pediatrics*, 14(1), 41.

Siegler, M. (2018), Brandon Marshall bonded with Giants over mental health. Page

Six. Retrieved from https://pagesix.com/2018/04/02/brandon-marshall-bonded-with-giants-over-mental-health/amp/?_twitter_impression=true

Simmons, S. (2017), Former NHL player Shayne Corson opens up about anxiety

problem: 'It took over my life'. National Post. Retrieved from

https://nationalpost.com/sports/baseball/mlb/former-nhl-player-shayne-corson-opens-up-about-anxiety-problem-it-took-over-my-life/amp?_twitter_impression=true

Stanley, I. H., Hom, M. A., & Joiner, T. E. (2018). Modifying mental health help-

seeking stigma among undergraduates with untreated psychiatric disorders: a pilot randomized trial of a novel cognitive bias modification intervention. *Behaviour Research and Therapy*, 103, 33–42. doi:10.1016/j.brat.2018.01.008

Uphill, M., Sly, D., & Swain, J. (2016). From mental health to mental wealth in

athletes: looking back and moving forward. *Front. Psychology.*, 7, 935. doi: 10.3389/fpsyg.2016.00935

Ward, M. K., Meade, A. W., Allred, C. M., Pappalardo, G., & Stoughton, J. W.

(2017). Careless response and attrition as sources of bias in online survey assessments of personality traits and performance. *Computers in Human Behavior*, 76, 417-430.

Yang, N. (2018), Marcus Morris shares how he benefited from seeing a psychologist.

Boston Globe. Retrieved from

<https://www.bostonglobe.com/sports/celtics/2018/08/22/marcus-morris-shares->

[how-benefited-from-seeing-](https://www.bostonglobe.com/sports/celtics/2018/08/22/marcus-morris-shares-how-benefited-from-seeing-)

[psychologist/yIOSIXGAVvFL6ondHxCbEO/story.html](https://www.bostonglobe.com/sports/celtics/2018/08/22/marcus-morris-shares-how-benefited-from-seeing-psychologist/yIOSIXGAVvFL6ondHxCbEO/story.html)