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College Athletes Attitudes' Toward Transgender Athletes Participation In Collegiate Level Sports

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COLLEGE ATHLETES' ATTITUDES TOWARD TRANSGENDER ATHLETES' PARTICIPATION IN COLLEGIATE LEVEL SPORTS

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ABSTRACT

The purpose of this study was to expand upon the work of Tanimoto and Miwa (2021) by examining factors that contribute to the acceptance of or discrimination against transgender athletes. Several hypotheses were explored: participants would rate the transgender athlete more positively when described as a transgender man or when taking hormones; cisgender women would express less prejudice towards transgender people and would report less gender-segregated transprejudice than cisgender men; women with a strong athletic identity would report more gender-segregated transprejudice; and there would be an association between strong beliefs about the discreteness, homogeneity, and informativeness of gender identity and weak beliefs about the naturalness of gender identity and more transprejudice. Participants read a vignette about a hypothetical transgender athlete who was interested in playing college level sports. Participants completed ratings on the transgender athlete, Context-Dependent Transprejudice scale, Athletic Identity Measure, and Gender Identity Beliefs Scale. Data was gathered from 100 different universities, from all 50 states. Participants were predominately cisgender women, heterosexual, and White. Participants had more positive attitudes toward the trans man athlete than the trans woman athlete; the hormone status of the hypothetical transgender athlete was not a significant factor for predicting participant attitudes towards them. Less gender-segregated transprejudice, a non-heterosexual orientation, and beliefs that gender identity is fluid and different gender identities are natural, predicted positive attitudes toward the trans athlete. Athletic identity was not a significant predictor of attitudes towards the hypothetical transgender athlete. Additionally, participants who played team sports had more positive attitudes toward the trans man athlete than the trans woman athlete; participants who played individual sports rated the trans athlete similarly regardless of the trans athlete's gender

identity. Lastly, contact with trans people generally, but not trans athletes, predicted less transprejudice and more positive attitudes toward trans athletes. Understanding how and why transgender athletes experience discrimination allows humanity to step forward with social change and create safer spaces for people of all genders. It is important to allow everyone to engage in athletic activities due to the high prevalence of depression and anxiety within the transgender community that could be alleviated by engaging in sports and other physical activities (De Moor et al., 2006; Dhejne et al., 2011).

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The separation of sex and gender in psychological research is a relatively new phenomenon. Due to the primary medical assumption that sex assigned at birth is the determining factor for gender identity, a transgender identity can be seen as a source of controversy.

Sex and gender have been used to discriminate against athletes since the early Olympics. For example, ancient Greeks forbade women from participation in the competition or face the possibility of being thrown off Mount Typaion (Harper, 2019). However, women were allowed to participate in a sex-specific alternative, the Heraean Games, whose officials, organizers, and participants were all women. The ban on female participation in the Olympics stayed in place until the early 1900's. The fight for sports-based gender equality continues to the present as the 2021 Tokyo Olympics were the first to allow both women and men to swim the 800 and 1500 meters (Harper, 2019. Tokyo 2021 was the first time openly transgender athletes have participated in Olympic events. Sports are often seen as a major platform for the display of cultural norms and fulfillment of gender expectations, such as men being stronger and more athletic than women, which makes it the perfect target for the ostracization of those who do not fit that norm, such as transgender athletes (Cunningham et al., 2018).

The purpose of this study was to further examine college athletes' attitudes towards transgender athletic participation and factors that may contribute to that acceptance or discrimination. We applied Pirlott and Cook's (2018) affordance management approach as the theoretical framework for our study in order to better understand the emotions and behaviors that occur when people encounter a threat or opportunity. In the case of transgender athletes, there is

often a perception that they are threatening to other athletes/teammates and, therefore, should not be allowed athletic participation. Recently, there has been nationwide discourse regarding transgender participation in sports at every level. On March 20th, 2022 Arizona passed a law that bans students assigned male at birth from participating in sports designated for women, or girls in public schools or private schools whose sports teams play against public schools, making it the 5th state that year to limit transgender participation in athletics (Cole, 2022). However, in February 2023 the Virginia Senate defeated two bills that would have restricted transgender athletes from playing sports in public schools (Rankin, 2023).

Definitions

Transgender refers to someone who does not identify with the sex assigned at birth and cisgender refers to someone who identifies with the sex they were assigned at birth (Bradford & Williamson, 2021). Someone who identifies as a transgender man or boy was assigned female at birth, but identifies as male (Green et al., 2018). Transgender women and girls were assigned male at birth, but currently identify as female (Green et al, 2018). Biological sex is assigned based on the genitalia and other reproductive organs that someone is born with (typically male, female, or intersex) (Bradford & Williamson, 2021). Gender on the other hand, is a much broader term that refers to how someone behaves, acts, and perceives themselves and their place in society based on expectations or cultural norms (Human Rights Campaign, n.d.). These societal norms can reinforce the gender binary, a classification system that places sex and gender into two categories based on anatomy- man (penis) and women (vagina) (Kendall, 2023).

Transphobia is an emotional disgust people may experience towards those who identify as transgender or those who do not conform to societal expectations of gender norms (Hill & Willoughby, 2005). Transprejudice is the negative stereotyping of and discriminatory treatment

toward those whose gender identity does not match their sex assigned at birth (King et al., 2009). Typically, the term transprejudice had been used in research to define the construct of prejudice aimed at the transgender community (Hill & Willoughby, 2005).

The Affordance Management Approach

Pirlott and Cook (2018) reviewed evidence that supported applying the affordance management approach to sexual prejudice. Affordances are either opportunities or threats elicited by other people: "one evaluates potential threats and opportunities afforded by others, and these perceived affordances elicit specific emotions, which prompt specific behavioral reactions to mitigate perceived threats or seize perceived opportunities" (p. 1003). For example, threats to health elicit physical disgust, which may prompt avoidance of the sources of contamination (Pirlott & Cook, 2018). Interactions are categorized as either a threat or an opportunity depending on the goals of the perceiver and the goals and or abilities of the target (McArthur & Baron, 1983). For example, a straight woman might perceive an opportunity for friendship from a gay man, but a straight man might perceive a gay man as a threat to a mating opportunity. Although Pirlott and Cook focused on sexual prejudice, they recommended applying the affordance management approach to understanding transprejudice.

The affordance management approach is interwoven with the fundamental motives theory and the sociofunctional threat-based approach to prejudice. The fundamental motives theory states relevant social goals for understanding perceived threats and opportunities (Kenrick et al., 2003). This theory suggested that human behavior has adapted to successfully manage the challenges of survival (Pirlott & Cook, 2018). Engaging in appropriate cognitive, emotional, and behavioral responses to recurring challenges increased the likelihood of survival and successful reproduction led to ingrained psychological mechanisms for addressing specific challenges

(Pirlott & Cook, 2018). The affordance management approach explains how threats and opportunities shape human behavior through the lens of the fundamental motives theory, which argues that we perceive other people's behavior through the lens of core human motives, such as eating safety, or shelter (Pirlott & Cook, 2018).

Sociofunctional threat-based approach to prejudice proposes that prejudices between groups elicit certain reactions in response to the perception of specific threats that the outgroup members pose to the ingroup members, such as threats to physical safety or economic resources (Cottrell & Neuberg, 2005). Therefore, prejudice is driven by perceived threats and not necessarily group membership (Pirlott & Cook, 2018). For example, perceived threats to safety should predict fear and avoidance in order to protect oneself or one's ingroup (Cottrell & Neuberg, 2005).

Pirlott and Cook (2018) based their review on five fundamental motives and how they activate relevant preexisting perceptions around sexual orientation affordances, which should then trigger specific emotional responses that will impact behavior. The fundamental categories are "mating, seeking and maintaining status, parenting, avoiding pathogens, and facilitating ingroup functioning" (p. 1003).

The first fundamental motive is mating, which should trigger emotions and behaviors when activated by a threat or opportunity (Pirlott & Cook, 2018). An individual may perceive another person as showing sexual interest toward them that is unwanted. This unwanted sexual interest may be viewed as threatening and can give rise to avoidance, fear, anxiety, and aggression. For example, a heterosexual woman may avoid lesbian women because of perceived unwanted sexual interest from lesbian woman. In addition, a heterosexual man may attack a gay man if he perceives the gay man showing sexual interest in him.

The second fundamental motive is seeking and maintaining status, which can give rise to different emotions. This first emotional response is anxiety, which prompts an avoidance behavior in order to minimize likelihood of stigmatization. For example, if a straight man is trying to find a mate, he may avoid being seen with a gay man so that women do not assume he is also gay. The second emotional response is anger, if the perceiver is also stigmatized. If the perceiver is stigmatized, it will prompt an aggressive behavior in order to remove the stigma association. For example, if a straight man and a gay male were seen in public together and someone mocks them for being a gay couple, the straight male may feel anger and assault the gay male in order to show they are not a gay couple and regain social status.

Pirlott and Cook (2018) described the third fundamental motive as parenting and childhood development. The relevant affordance made toward a target may be the perceived as an influence on children's normative gender role and sexual orientation development, and the possibility of sexually harming children. The emotional response would be moral disgust and anger, which would prompt behaviors of avoidance and aggression in order to prevent or stop the LGBTQIA+ individual from influencing the child. For example, if a mother wants her son to display what she considers to be appropriate masculine social norms, she may avoid relationships with a gay man so he does not influence/encourage behaviors that divert from those social norms.

The fourth fundamental motive is avoiding pathogens. A target may be perceived as a threat to health, which would evoke an emotional response of physical disgust. The physical disgust would prompt an avoidance behavior in order to avoid further contamination. For example, may people have the misconception that all gay men have HIV or AIDS. If a straight

man finds out that a gay man has HIV or AIDS, he may feel disgust and avoid interaction with the gay man.

Pirlott and Cook (2018) described the fifth fundamental motive as facilitating ingroup cohesion and affiliation. Perceived threats to group norms and values may elicit moral disgust, anger, avoidance, or aggression toward the threatening target. For example, gay men may be perceived as threatening group norms just by refusing to engage in heterosexual behavior. Straight ingroup members may feel morally disgusted by this, and therefore avoid friendship with the gay male. The last affordance would be a friendship opportunity, which brings about a positive emotional response. This positive emotional response will evoke an affiliative approach behavior toward people following traditional role norms.

For this study, we applied the fundamental motives of mating, and ingroup facilitation to collegiate athletes' attitudes towards transgender college athletes. For the fundamental motive of mating, if a cisgender teammate believes that their transgender teammate is engaging in unwanted sexual interest, that fear may intensify in a shared space like a locker room or team event, which could elicit an emotional response of aggression or avoidance.

Facilitating ingroup cohesion and affiliation is also relevant regarding attitudes towards transgender athletes. Since sports are so ingrained in American society, it is important to maintain the status quo when it comes to the athletes. When the group norm of cisgender athletes is violated, it may elicit moral disgust or aggression in cisgender athletes and sports fans towards transgender athletes.

Attitudes Towards Transgender People

Factors Associated with Transprejudice

Research on broad societal attitudes towards those who identify as transgender is somewhat limited but has grown over the last ten years or so. However, there are many studies discussing attitudes towards sexual minorities and those studies primarily focus on cisgender gay men and lesbian women (Cunningham & Pickett, 2018). Studies regarding gender and sexual orientation have shown that attitudes towards those who identify as transgender are significantly less favorable than those who identify as gay, lesbian, or bisexual (Huffaker & Kwon, 2016). Norton and Herek (2013) found that attitudes towards transgender people were strongly correlated with attitudes toward gay men, lesbians, and bisexuals, but were significantly less positive. The root of transprejudice could vary as there are several factors that potentially predict levels of transprejudice within an individual. One of the reasons for prejudice against the transgender community could be due to unmet societal expectations of gender. Non-standard representations of gender, such as men wearing makeup or women wearing suits, can be seen as a threat to the stabilization of cultural norms and ideas surrounding gender identity, which can lead to the reluctance of inclusion and acceptance of transgender individuals (Sykes, 2006).

Further, noncisgender identities may elicit moral disgust in cisgender people, which can lead to aggression or violence. Because those who identity as transgender are often seen as violating gender norms, they have potential to be perceived as threatening ingroup values and cohesion (Pirlott & Cook, 2018). Threatening the values and cohesion of an ingroup has the potential to undermine group success and functionality, such as cooperation and reciprocity (Pirlott & Cook, 2018). Often when LGB identifying persons are seen as threatening ingroup values, the emotional response is moral disgust and anger. For example, Cottrell and Neuberg (2005) found that undergraduate students in the U.S. perceived gay men as posing greater ingroup contamination threats which produced a primary emotional response of disgust. This

moral disgust may then turn to violence or hate crimes against those that identity outside of the gender binary. To further illustrate this, Norton and Herek (2013) found that negative attitudes towards transgender people were associated with endorsement of a binary concept of gender. The amount of transgender representation in media has grown, and people are now more familiar with gender minorities than ever, however, those who identify outside of a traditional male or female gender identity are still at a higher risk for public alienation, violence, and abuse (Clements-Nolle et al., 2006; James et al., 2016; Lombardi, 2001).

In a meta-analysis conducted by Hatch et al. (2022), 308 correlations for predictors of transprejudice were tested. Across all studies, both men and heterosexual participants were more likely to express more transprejudice than women and those that identify as LGBTQIA+. Additionally, Hatch et al. (2022) found that higher levels of political conservatism, a greater endorsement of social dominance orientation, greater endorsement of religious beliefs, religious fundamentalism, greater endorsement of traditional gender role beliefs, gender essentialism and sexism were all found to be strong predictors for transprejudice. Among the significant predictors for transprejudice, Hatch et al. (2022) found that aggression had the smallest effect. Conversely, attitudes towards LGB identifying people had the greatest effect. In other words, people who exhibit more prejudice towards people who identify as LGB are more likely to exhibit prejudice towards people who are transgender (Hatch et al., 2022).

There are ways to change attitudes and reduce prejudice towards transgender people. According to the contact hypothesis, prejudice may be reduced when majority and minority groups work together to achieve common goals (Allport, 1954). However, one of the most consistent waysto reduce transprejudice is to have contact with the transgender community, regardless of goal achievement (Flores et al., 2018; Hatch et al., 2022; King et al., 2009).

The Context-Dependent Transprejudice Scale

To measure transprejudice for this study, the Buck and Obzud (2018) *The Context-Dependent Transprejudice Scale* was used. This scale is intended to measure the level of transprejudice someone exhibits in the context of gender-integrated spaces, like shopping malls, or gender-segregated-spaces, such as changing rooms. It is somewhat different from other measures of transprejudice as it does not just measure the level of prejudice someone feels towards a transgender person or the transgender community. Instead, it measures the level of transprejudice depending on the physical location that person is occupying. Buck and Obzud (2018) made several key findings regarding attitudes towards transgender people in varying contexts. For example, both cisgender men and women exhibited greater transprejudice while in a gender-segregated spaces versus when they were in a gender-integrated space. They found more transprejudice was associated with feeling gender norms were being threatened, leaving cisgender people to feel a heightened vulnerability and insecurity around transgender people in gender-segregated spaces. Buck and Obzud (2018) also suggested that showing greater prejudice in a gender-segregated space could represent that individual's views on gender equality. It is easier to dismiss societal ideas of gender differences when in a gender-integrated space where there is less of an emphasis on gender, than in a gender-segregated space. This could be because gender-integrated spaces allow for gender inclusion, and thus, more allowance for pushing the boundaries of societal expectations and norms. Gender-segregated spaces have more defined rules and expectations that could activate emotions of fear, anxiety, and anger, along with aggressive or avoidant behavior when those "rules" have been broken. For example, Pirlott and Cook (2018) found that emotions of anxiety and discomfort from interacting with people who identify as LGB could arise from a heterosexual cisgender person's perception that there is a

threat of an unwanted sexual interest from an LGB person. This threat could be further intensified in a gender-segregated space where someone is in a state of undress, or otherwise additionally vulnerable, e.g., a shared bathroom or locker room.

Measuring this kind of attitude is important when assessing the factors that influence the attitudes of cisgender athletes towards transgender athletes due to the emphasis of gender segregation in sports and the spaces in which athletes interact such as locker rooms or athletic competitions.

Attitudes Towards Transgender Athletes

The acceptance of transgender participation in competitive sports has been a controversial issue among athletic competitors (Jones et al., 2017). Ellis et al. (2014) found that in the context of sports, those who identify as transgender may engage in avoidance behaviors when they view the sport as exclusionary, such as not attending team gatherings or avoiding using the locker rooms.

Although cisgender lesbian, gay, and bisexual athletes have experienced a decrease in prejudice over time, transgender athletes have not (Cunningham & Pickett, 2018). This has been historically documented because transgender people have been repeatedly banned from participating in official competitive sports solely based on their gender identity (Pieper, 2017). Sport policies have been inconsistent with societal trends advocating fair treatment of transgender individuals as they restrict trans athletes based on the idea that they are ensuring fair competition (Tanimoto & Miwa, 2021). “Fairness in competition” when it comes to transgender athletes seems to either come from the perspective of the sport, such as making sure no one is taking performance drugs to ensure an even playing field, or the perspective of human rights,

which takes into consideration the personal circumstances of the athletes (Tanimoto & Miwa, 2021).

Recently, there has been a nationwide push to exclude transgender athletes from participating in athletics at every level. Idaho became the first state to ban transgender girls from participating in every level of sports from kindergarten through high school (Stecklein, 2022). Since then, 31 states have either proposed or considered similar legislation (Stecklein, 2022). Most recently, Oklahoma governor Kevin Stitt signed The Save Women's Sports Act that prevents transgender women from completing in all levels of women's sports (Stecklein, 2022).

Attitudes Towards Transgender Athletes Taking Hormones versus Not Taking Hormones

Hormone treatments used in transgender medical care aim to erase or suppress current or previous hormonal effects from sex steroids naturally released in the body and to induce desired hormonal effects that matches their gender identity through pills, patches, gel, or by injections (den Heijer et al., 2017). Gonadotropin-releasing hormone analogues (GnRHAs) are often prescribed in order to block puberty hormones only when the transgender adolescent is prepubescent or in the early stages of puberty (Turban et al., 2020). These treatments can be essential to the well-being of transgender people. For example, Van de Grift et al. (2016) found that transgender patients experienced a significant decrease in anxiety, depression, and hostility after beginning hormone therapy. It is also possible to decrease gender dysphoria through taking hormones or by presenting as the gender they most identify with, while continuing to identify as transgender (Carroll, 2015). For transgender women, the key element is the administration of estrogens (den Heijer et al., 2017). However, this may not suppress testosterone enough for the desired hormonal effects. Most transgender women need estrogens in combination with an anti-androgen, which is a testosterone suppressing drug that may be administered through pills,

patches or by injections (Hembree et al., 2017). For transgender men, testosterone is the hormone needed for gender affirming care (Irwig, 2017).

Testosterone is an anabolic–androgenic steroid that is naturally produced in the testes for men and ovaries for women and is responsible for enhancing athletic abilities (Wood & Stanton, 2012). Thus, steroids are banned or heavily regulated in most sporting competitions (Wood & Stanton, 2012). Testosterone stimulates muscle mass (Storer et al., 2003) and increases aggression and motivation in the brain that is needed for competition (Wood & Stanton, 2012). Although testosterone is not the only hormone that a transgender person might be prescribed, it is the most common androgen and frequently the only one mentioned in debates against transgender athletic participation (Harper, 2019). This could be because those with higher testosterone levels often possess athletic advantages, such as height or weight advantages (Harper, 2019). However, testosterone may provide athletic advantages for some sports, such as long-distance running, that may not generalize to all sports (Harper, 2019).

To our current knowledge there is only one research study addressing attitudes towards transgender athletes who are taking hormones. Tanimoto and Miwa (2021) conducted a study of 373 undergraduate students at a university in Japan. They found that transgender athletes who received hormone treatment were more accepted than transgender athletes who were not taking hormones. Additionally, transgender women who were taking hormones were more accepted than transgender men who were taking hormones and transgender men were overall more accepted than transgender women. One of the reasons for these results might be because hormone treatment typically allows transgender individuals to more effectively present as their preferred gender, which gives the perception that fewer gender norms are being violated (Tanimoto & Miwa, 2021). This agrees with Jones et al. (2017) who proposed that transgender

women are perceived as having an advantage in competitive sport when testosterone levels had not been lowered to the same levels as those in cisgender women. Thus, transgender women may be more accepted in competitive sports if they are on hormones than if they are not. Since hormones allow a transgender person to pass as their preferred gender, cisgender people may see noncisgender people as aligning more effectively with social norms; thus, it may be more acceptable for a cisgender person to pursue a friendship with a noncisgender person.

Attitudes Towards Transgender Men versus Transgender Women

The participation of the transgender community in sports and athletic competitions is currently a source of contention among sport organizations, fellow competitors, and spectators. This is due, in part, to sport spectators who tend to view male and female athletes differently because sports were designed to favor the male physique (Messner, 1988). This leads to the belief that men are naturally more athletic than women and thus, gender becomes a defining feature in the conversation of fairness in sports competitions. The concern of fairness in athletics is often used as the main argument for the negative reactions towards transgender athletes (Tagg, 2012). This can be demonstrated in the controversy surrounding the transgender community that arises from the belief that trans-athletes have an athletic advantage due to hormones, the restrictions placed on trans-athletes, and the high levels of discrimination and victimization reported by transgender athletes (Jones et al., 2017).

Research indicates that people tend to have more negative attitudes toward transgender women than transgender men (Anderson, 2018; Chen & Anderson, 2017; Gazzola & Morrison, 2014; Glotfelter & Anderson, 2017; Perez-Arche & Miller, 2021). One of the reasons for this could be because gender non-conforming behaviors in those who have been assigned male at birth are viewed more negatively than gender nonconformity in those who have been assigned

female at birth, regardless of their later gender identification (Carrera-Fernandez et al. 2014; Winter, 2008). In sports, the gender nonconformity is viewed on a hormonal level. When testosterone has not been blocked, transgender women are perceived as having an advantage in competitive sport due to the belief that androgenic hormones create an athletic advantage and those who are assigned male at birth tend to possess more androgenic hormones than those assigned female at birth (Jones et al., 2017).

According to the Affordance Management Approach (Pirlott & Cook, 2018), a disruption of social order threatens effective group functioning, leading to an emotional response of moral anger and/or disgust, which may result in an aggressive behavior or an avoidance behavior towards the threat. Since fairness in athletics is the defining argument for excluding transgender athletes, it stands to reason that prejudice would result when that fairness is perceived to be challenged by athletes and sports fans. Along those same lines, transgender men are not thought to maintain an athletic advantage even if they are being injected with testosterone (Jones et al., 2017). Transgender men, unlike transgender women, are not considered to maintain an athletic advantage even if they choose to hormonally transition (Jones et al., 2017). This is likely because there are some advantages that injecting testosterone post-puberty cannot provide, such as adding height to a person. The apparent lack of advantages could prevent people from seeing transgender men as being as threatening as transgender women athletes (Reeser, 2005).

Athletic Identity

The acceptance of transgender athletes by their teammates may depend on how attached how the cisgender athlete is to their athletic identity. Athletic identity is the degree to which an individual identifies with an athletic role (Brewer, Van Raalte et al., 1993), which can be part of social identity, or a feeling of group belongingness (Tanimoto & Miwa, 2021). Social identity

also entails a depersonalization of the self, which leads people to lose their own individual identity in favor of a collective identity (Brewer, Van Raalte et al., 1993). When it comes to student athletes, there have been several empirical investigations that demonstrate they are further behind in their psychosocial development than their peers who are not student athletes. The title of student athlete is often highly rewarded both monetarily and socially, which could lead to a greater attachment to their athletic identity and less attachment to other defining characteristics (e.g., job title, degrees held, parental status) (Blann, 1985; Kennedy & Dimick, 1987). College athletes may be further behind in their psychosocial development because they may lack opportunity or incentive to seek identities outside of athletics (Petitpas, 1981). They are also required to selectively optimize their cognitive attention in a way where they concentrate on sports at the exclusion of other activities or friendships (Danish, 1983).

College student athletes may be more attached to their athletic identities than other athletic cohorts, such as high school sports teams. The first reason for this is because athletes are more attached to their athletic identity because the level of sport participation is greater (e.g., high school football versus college football) (Brewer, Petitpas et al., 1993; Houle et al., 2010). Conjointly, commitment to athletic identity was found to be the most pronounced during late adolescence (Brewer & Petitpas, 2017), which is a primary time in life for would-be college athletes.

There can also be psychological consequences for athletes when they experience a loss of athletic identity. Injury that prevents athletic play can lead to depressive symptoms in those who have a strong athletic identity (Brewer, Van Raalte et al., 1993). Similarly, Kleiber and Brock (1992) conducted a study with college athletes who experienced injuries that ended their athletic

careers. They found that athletes who were more invested in playing at a professional level experienced lower self-esteem and life satisfaction.

Athletic Identity and Attitudes toward Transgender Athletes

Even though women consistently have more positive attitudes towards the transgender community than do cisgender heterosexual men (Flores et al., 2020; Glotfelter & Anderson, 2017; Nagoshi et al., 2008; Tebbe & Moradi, 2012), women who have a stronger athletic identity are less likely to be accepting of transgender athletes compared to women who have a weaker athletic identity (Tanimoto & Miwa, 2021). Tanimoto and Miwa (2021) found that possessing a strong athletic identity is associated with sports achievement. When sports achievement was related to a desire for justice in sports, the desire for a level playing field was high. Thus, when transgender athletes were seen as possessing an athletic advantage, the idea of an even playing field was threatened (Tanimoto & Miwa, 2021). Similarly, Flores et al., (2020) found that both men and women with a strong attachment to the identity of "sports fan" showed greater transprejudice than those who were less attached to that identity.

From the view of Pirlott's and Cook's (2018) affordance management approach, the anticipated threat from transgender athletes could be towards ingroup values. This threat could elicit disgust or anger, which leads to avoidance or aggression towards the perceived threat. In this case the perceived threat is changing what sports participation means, which challenges the identity of "sports fan" that someone may have a high attachment to. Since that norm is seen as being threatened by transgender athletes, it follows that people who feel the most threatened would exhibit the more prejudice towards those they perceive as threatening it. This suggests that athletes with strong athletic identities may exhibit more gender-segregated transprejudice than those with weak athletic identities.

Gender Identity Beliefs Scale

The Sexual Orientation Beliefs Scale (SOBS) was developed by Arseneau et al. in 2013 in order to evaluate a broad range of beliefs regarding sexual orientation. After several studies, Arseneau et al. (2013) identified four factors on the SOBS, the first of which is discreteness. This is defined as the belief that sexual orientation has clear boundaries and that someone may only belong in one category grouping. Grzanka et al. (2016) found that a belief in discreteness was associated with more sexual prejudice.

The second subscale, homogeneity is intended to reflect the belief that people view those inside their social group as more unique and those outside of their social group as more similar to each other. A strong belief in homogeneity may be associated with more negative attitudes toward sexual minorities (Grzanka et al., 2016). The third subscale is naturalness, which is defined as a belief that sexual orientation is innate and biological, set early in life, unchangeable, and consistent across cultures. Generally, research indicates those who held more positive attitudes towards sexual minorities believed sexual orientation was inborn (Hegarty & Pratto, 2001; Jayaratne et al., 2006). If someone is more likely to believe that sexual orientation is natural, they may also be less likely to view gender nonconforming behavior as disrupting social norms.

The fourth subscale is informativeness. This subscale assesses the belief that knowing a person's sexual orientation provides important information on other aspects of that person and that people can be easily grouped according to their sexual orientation. Grzanka et al. (2016) found that participants with higher informativeness scores also reported higher levels of sexual prejudice. For example, knowing someone is transgender might evoke other stereotypes about transgender people, e.g. believing that transgender people are trying to trick cisgender people, or

all transgender people are mentally ill. Thus, someone could believe that just by knowing someone is transgender, they know more intimate details about other aspects of their lives.

Although gender identity and sexual orientation are not the same, sexual prejudice and transprejudice are significantly correlated (Glotfelter & Anderson, 2017; Hill & Willoughby, 2005; Nagoshi et al., 2008; Norton & Herek, 2013). In addition, sexual prejudice and transprejudice share some of the same predictors such as political conservatism (Prusaczyk & Hodson, 2020) and beliefs in traditional gender roles (Brassel & Anderson, 2020, Costa & Davies, 2012). More relevant to the SOBS, a threat to one's belief in the gender binary or the belief that there are two discrete categories of gender, e.g., female and male, is associated with transprejudice (Garelick et al., 2017; Hyde et al., 2019; Morgenroth et al., 2021). Furthermore, the belief that people are born with a transgender identity or that biological factors cause a transgender identity, e.g, naturalness, is associated with more positive attitudes toward transgender people (Anderson, 2022; Claman, 2007; Elischberger et al., 2018; Landén & Innala, 2000; Woodford et al., 2012). In accordance with Pirlott and Cook's (2018) Affordance Management Approach theory, a mating threat could be activated if someone perceives an interaction as an unwanted sexual proposition. For example, not knowing someone's gender identity could create a misunderstanding of a sexual versus platonic interaction in a gender-segregated space, such as a locker room, and thus elicit emotional responses of aggression or avoidance (informativeness; Pirlott & Cook, 2018). Further, stepping outside the gender binary could threaten ingroup values and cohesion, which then could evoke emotional responses of avoidance, anger, and/or moral disgust (discreteness, Pirlott & Cook, 2018). Ingroup values could also be threatened when someone views their social group, cisgender athletes, as more unique and those outside of their social group as more similar to each other, such as transgender

athletes. If transgender athletes are viewed as having an athletic advantage, that could elicit emotional responses of avoidance, anger, and/or moral disgust (homogeneity; Pirlott & Cook, 2018).

Present Study

The present study expanded upon the work of Tanimoto and Miwa (2021) by examining factors that contribute to the acceptance of or discrimination against the participation of transgender athletes in sports. These factors include college athletes' attitudes towards transgender athletes, context-dependent transprejudice, athletic identity, and gender identity beliefs. We used four vignettes that describe a hypothetical transgender athlete who identifies as either a transgender woman or a transgender man and who is or is not taking hormones to assess attitudes toward the participation of transgender athletes in sports. Participants rated their overall feelings toward the hypothetical transgender athlete (e.g. if they would feel comfortable with a transgender athlete on their team, or what types of sports would be most appropriate for said athlete).

The first hypothesis was that participants would be more comfortable with the hypothetical transgender athlete when they are taking hormones than when they are not taking hormones. This is consistent with results reported by Tanimoto and Miwa (2021). The second hypothesis was that participants would be more comfortable with a hypothetical transgender athlete when they are described as a transgender man than when they are described as a transgender woman. This is due to recent nationwide sports bans placed on transgender women (Stecklein, 2022) and transgender men not being seen as possessing an athletic advantage, unlike transgender women, (Jones et al., 2017), which could threaten the facilitation of ingroup cohesion (Pirlott & Cook, 2018). According to the Affordance Management Approach, when

ingroup cohesion is disrupted (e.g., an athlete possessing an athletic advantage) there may be emotional responses of moral disgust, anger, avoidance, or aggression toward the threatening target, such as banning transwomen from participating in athletics (Pirlott & Cook, 2018; Stecklein, 2022).

The third hypothesis was consistent with findings that indicate cisgender women express less prejudice towards transgender people (Flores et al., 2020; Glotfelter & Anderson, 2017; Hatch et al., 2022; Nagoshi et al., 2008; Tebbe & Moradi, 2012) and predicts that cisgender women would report less gender-segregated transprejudice than cisgender men.

However, consistent with the findings of Tanimoto and Miwa (2021), the fourth hypothesis predicted that cisgender women participants who have a strong athletic identity would exhibit more gender-segregated transprejudice than cisgender women with a weak athletic identity. Because the Affordance Management Approach indicates that emotional responses of aggression, avoidance, and/or moral disgust occur when there is s disruption of ingroup cohesion (Pirlott & Cook, 2018), it follows that athletes with a strong athletic identity have a stronger desire to maintain social norms and ingroup cohesion, than athletes with a weak athletic identity.

The fifth hypothesis predicted that participants with strong beliefs about the discreteness, homogeneity, and informativeness of gender identity and weak beliefs about the naturalness of gender identity would report higher levels of both gender-segregated and gender-integrated transprejudice. Additionally, we explored attitudes of cisgender athletes who were members of team or individual sports and differences between heterosexual and non-heterosexual participants. Finally, we explored attitudes between cisgender men and cisgender women on the Gender Identity Beliefs Scale and their attitudes towards transgender athletes.

Method

Design

The present study used a 2 (vignette character- transgender man or transgender woman) x 2 (hormone status- taking them or not) factorial design to assess attitudes towards the vignette character's participation in collegiate-level sports. Due to the random assignment of vignette characters, part of this study was experimental to assess relationships between the gender and hormone usage of transgender athletes and attitudes toward transgender athletes. Correlations were calculated between scores on the ratings of the hypothetical trans athlete, and scores on the Context-Dependent Transprejudice, Gender Identity Beliefs, and Athletic Identity scales.

Participants

A power analysis was conducted assuming a medium effect size using power of .80 and a probability of .05. The analysis determined that a minimum number of 180 student athletes were needed. We excluded scores on measures for the participants who failed to answer more than 10% of that measure; however, other completed measures for these participants were included in the analyses. Participants who answered one or both manipulation check items incorrectly were excluded from all analyses.

Data was collected from an online survey. A total of 613 participants were recruited from collegiate-level club or recreational sports, or NCAA affiliated teams throughout the United States. See Appendix A for the recruitment script. Participants had to be at least 18 years old and indicate that they played an NCAA sanctioned and/or a recreational/club level sport. People of all gender identities, sexual orientations, and races/ethnicities were recruited. We deleted data for 319 people due to the following: did not play a sport (n = 38); sports question and/or informed consent left blank (n = 114); did not answer the vignette ratings (n = 120); incorrect

manipulation check answers (n = 45); and incorrect attention checks (n = 2). That left a total of 294 people.

Of those who reported their gender identity (n = 293), 202 (68.9%) identified as cisgender women, 78 (26.5%) as cisgender men, 2 (0.7%) transgender women, 1 (0.3%) agender persons, 9 (3.1%) nonbinary persons, 1 (0.3%) other. The age of the participants (n = 294) ranged from 18 to 37 years with an average of 20.24 years (SD = 2.51). The race of the participants (n = 294) consisted of 253 (86.1%) White/Caucasian, 8 (2.7%) Hispanic, 1 (0.3%) Latinx, 9 (3.1%) Asian/Asian American, 9 (3.1%) Black/African American, and 14 (4.8%) multi-racial. Of those who reported their sexual identity (n = 290), 216 (73.5%) identify as straight, 38 (12.9%) as bisexual, 13 (4.4%) as lesbian/WLW, 8 (2.7%) as pansexual, 7 (2.4%) as other, 5 (1.7%) as asexual, 2 (0.7%) as gay/MLM, and 1 (0.3%) as demisexual. Of those who reported their education level (n = 293), 198 (67.3%) reported having completed some college, 60 (20.4%) reported having earned a high school diploma/GED, 18 (6.1%) earned a college diploma, 9 (3.1%) completed some graduate studies, and 8 (2.7%) earned a graduate degree.

Two hundred-nine participants reported knowing someone who identifies as transgender, 67 (22.8%) reported not knowing someone who identifies as transgender, and 18 (6.1%) participants were unsure. One hundred-twelve participants reported having rarely interacted with transgender people, 109 (37.1%) reported having sometimes interacted with transgender people, 43 (14.6%) reported having often interacted with transgender people, and 30 (10.2%) reported never interacting with transgender people. One hundred forty-nine participants reported having never interacted with transgender athletes, 110 (37.4%) reported having rarely interacted with transgender athletes, 21 (7.1%) reported having sometimes interacted with transgender athletes, and 14 (4.8%) reported having often interacted with transgender athletes. One hundred ninety-

four participants reported not knowing an athlete who identifies as transgender, 73 (24.8%) reported knowing an athlete who identifies as transgender, and 27 (9.2%) reported being unsure.

Following is the list of sports reported by participants (n = 292): 36 (12.2%) volleyball; 28 (9.5%) track; 23 (7.8%) cross-country; 23 (7.8%) ultimate frisbee; 20 (6.8%) softball; 19 (6.5%) lacrosse; 18 (6.1%) swimming/diving; 16 (5.4%) rowing; 14 (4.8%) soccer; 13 (4.4%) wrestling; 12 (4.1%) rifle; 10 (3.4%) skating; 9 (3.1%) rugby; 8 (2.7%) tennis; 8 (2.7%) basketball; 8 (2.7%) water polo; 7 (2.4%) archery; 7 (2.4%) fencing; 6 (2%) baseball; 6 (2%) skiing; 5 (1.7%) field hockey; 4 (1.4%) golf; 4 (1.4%) gymnastics; 4 (1.4%) sailing; 3 (1%) ice hockey; 3 (1%) climbing; 3 (1%) triathlon; 2 (.7%) cheerleading; 2 (.7%) badminton; 2 (.7%) cycling; and 2 (.7%) roller hockey. The following ten sports 3.4%) were in the other category with one person for each type of sport: cricket, dance, dodgeball, equestrian, handball, jump rope, squash, football, bodybuilding, and/or weightlifting, and taekwondo. Of the 292 participants, 86.3% (n = 252) were involved in one sport, 12.7% (n = 37) in two sports, and 1% (n = 3) participated in three sports.

Materials

Demographic Questionnaire

The demographics questionnaire included questions about age, sex assigned at birth (i.e., male, female, intersex), current gender identity (i.e., man, woman, transgender woman, transgender man, etc.), race, sexual orientation (i.e., gay/MLM, asexual, bisexual, heterosexual/straight, etc.), and level of education. In addition, participants were asked what sports they currently play, contact with transgender people and athletes, as well as the frequency of their interactions. See Appendix B for the full demographic questionnaire.

Trans Athlete Vignettes and Ratings

Participants were randomly assigned one of four vignettes that were created for this study. Each vignette described a person named "Riley" who was described as being (1) assigned male at birth and currently identified as a transgender woman, and was taking hormones as part of their gender transition (n = 69), (2) assigned male at birth and currently identified as a transgender woman, and was not taking hormones as part of their gender transition (n = 66), (3) assigned female at birth and currently identified as a transgender man and was taking hormones as part of their gender transition (n = 74), or (4) assigned female at birth and currently identified as a transgender man and was not taking hormones as part of their gender transition (n = 69). The vignettes explained that Riley had participated in sports for most of their life and would like to continue engaging in sports at a collegiate level. The questionnaire then asked participants to respond to eight items on a Likert scale from strongly disagree (1) to strongly agree (6). Items include "I would be comfortable having Riley as a member of my sports team," and "Riley should be allowed to play individual sports." See Appendix C for the trans athlete vignettes and ratings.

We conducted a principal components analysis with promax rotation on the eight ratings of the vignette character. All of the items loaded on one factor and accounted for 83.1% of the variance. Therefore,-we averaged the responses to the eight ratings for the analyses. Higher scores indicated more acceptance of and more positive attitudes toward the hypothetical transgender athlete. The internal consistency was $\alpha = .97$.

Manipulation Check

After reading the vignettes and answering the questions about the trans athlete, participants responded to the following two manipulation check items: "What is Riley's gender?"

and “Is Riley taking hormones?” (See Appendix D). Participants were asked to choose the best answer. If one or both of these questions was answered incorrectly their data were discarded.

Context-Dependent Transprejudice Scale

Buck and Obzud (2018) created a 9-item context-dependent transprejudice scale. There are two subscales on this measure, one that measures transprejudice in gender-integrated spaces such as workplaces and schools, and another that measures transprejudice in gender-segregated spaces such as locker rooms and restrooms. There were six items on the gender-segregated scale including, “I would not mind sharing a public restroom with a transgender individual.” There were three items on gender-integrated scale that included, “I believe transgender individuals should receive equal healthcare coverage.”

This measure was on a 7-point Likert-scale with answers ranging from “strongly agree” (1), to “strongly disagree” (7). Total scores were calculated by adding item scores together for each subscale. Higher scores on either subscale indicated a higher level of context-dependent transprejudice. In a study using 189 participants, Buck and Obzud (2018) found that gender-segregated and gender-integrated spaces were positively correlated with one another ($r = .53$, $p < .001$) and attitudes regarding gender-segregated ($r = .77$) and gender-integrated ($r = .58$) settings were strongly related to Nagoshi et al.’s (2008) measure of transphobia, $p < .001$. The study also determined that dangerous world beliefs predicted transprejudice in gender-segregated settings, $R^2 = .33$, F (2, 186) = 46.16, $p < .001$, and gender-integrated spaces $R^2 = .29$, F (2, 186) = 38.20, $p < .001$. The three items related to gender-integrated spaces had an internal reliability of $\alpha = .93$, and the six items related to gender-segregated spaces had an internal reliability of $\alpha = .83$ (Buck & Obzud, 2018). For our study, the gender-integrated subscale had an internal reliability of $\alpha =$

.83, and the gender-segregated subscale had an internal reliability of $\alpha = .92$. See Appendix E for the full context-dependent transprejudice scale.

Athletic Identity Measure

Brewer, Van Raalte et al., (1993) created a 10-item athletic identity measure to measure how much someone viewed their participation in athletics as a part of their identity. Answers on a Likert-scale ranged from, "completely disagree" (1), to "completely agree" (5). Items included, "I consider myself an athlete," and "I have many goals related to sports." Higher scores indicated a greater attachment to one's athletic identity. Brewer, Van Raalte et al., (1993) demonstrated that scores on the athletic identity measure were significantly associated with scores on the importance of the sports competence scale ($r = .83$, $p < .001$). Brewer, Van Raalte et al., (1993) reported an alpha coefficient of .93, and a test-retest reliability coefficient of .83. For our study, the Athletic Identity Measure had an internal consistency of $\alpha = .85$. See Appendix F for the full athletic identity measure.

Gender Identity Beliefs Scale

Arseneau et al. (2013) developed the Sexual Orientation Beliefs Scale (SOBS) to assess beliefs about sexual orientation. The SOBS is a 31-item scale that used a 5-point Likert-Scale. Answers ranged from strongly disagree (1) to strongly agree (5). Originally, this scale was intended to assess beliefs regarding sexual orientation. The primary change for the current study was substituting the term "sexual orientation" with "gender identity." In addition to substituting "sexual orientation" with "gender identity," we reworded five other items. First, the item "If someone comes out as gay or lesbian, they were probably attracted to the same sex all along" was changed to "If someone comes out as transgender, they were probably that gender all along." The second item, "Sexual orientation is a category with distinct boundaries: A person is

either gay/lesbian or heterosexual" was changed to "Gender identity is a category with distinct boundaries: A person is either cisgender or transgender." The third item "Sexual orientation is a category with clear boundaries: A person is either gay/lesbian, bisexual, or heterosexual" was changed to "Gender identity is a category with clear boundaries: A person is either cisgender or transgender." The fourth item "People who identify as bisexual are confused about their true sexual orientation" was changed to "People who identify as transgender are confused about their true gender identity." Next, we changed, "It is possible to be 'partially' or 'somewhat' gay or straight," was changed to "it is possible to be 'partially' or 'somewhat' transgender or cisgender."

There were four subscales that comprised the SOBS that have been determined to have high reliability (Arseneau et al., 2013): discreteness (a = .88), homogeneity (a = .84), naturalness (a = .79), and informativeness (a = .77). We used the original items for discreteness and homogeneity. The first subscale "discreteness" consists of 6-items. This subscale was intended to measure how strongly one believes that gender identity groups (e.g., cisgender, transgender) are unique and someone may only belong to one group. An example item was "a person has only one true gender identity." Higher scores on this subscale indicated a stronger belief that gender identity was unchanging. The alpha coefficient for the current sample was .90. The second subscale, homogeneity, consisted of 6-items and higher scores were intended to reflect the belief that people viewed those inside their social group as more unique and those outside of their social group as more similar to each other. A sample item would include, "people with the same gender identity share a common fate." The alpha coefficient for the current sample was .71.

The third subscale was naturalness. This subscale was designed to measure how much a person believes that gender identity is innate, biological, and fixed early in life. The original

naturalness subscale consisted of 11 items. Internal consistency for the current sample was very low on this subscale, e.g., .23. Therefore, we ran a principal component analysis with a promax rotation on these 11 items. One reliable factor with five items was produced and accounted for 32.4% of the variability. Items included on the factor were "biology is the main basis of an individual's gender identity," "the existence of different gender identities is natural," "if someone comes out as transgender, they were probably that gender all along," "it is impossible to truly change one's gender identity," and "the idea that individuals have a 'gender identity' is a social invention." The alpha coefficient for this new subscale was .79. Higher scores indicated a stronger belief that gender identity is innate.

Lastly, the fourth subscale was informativeness. The original subscale of eight items had an internal reliability of $\alpha = .66$. We ran a principal components analysis with promax rotation that produced one reliable factor that accounted for 30.3% of the variance. Items included in the factor were "gender identity is an important characteristic of people," "a person's gender identity is an important attribute," and "most people view their gender identity as important to them." The alpha coefficient for this new subscale was .74. Higher scores indicated a greater belief that gender identity is an important aspect of a person.

Procedure

Participants were given a link that took them to the online Qualtrics survey. Once the survey was open, it prompted the participants to read the informed consent document (Appendix H). If they did not consent, they could click "Disagree" and they were taken to the end of the survey. If they did consent, they would click "Agree" and then they would be taken to the demographic questionnaire (Appendix B). Participants were then randomly assigned to read one of four vignettes: Riley as a transgender woman taking hormones; Riley as a transgender woman

not taking hormones; Riley as a transgender man taking hormones; and Riley as a transgender man not taking hormones. After reading the vignette, participants completed ratings of the transgender athlete (see Appendix C). Then, participants were asked to complete a manipulation check that consisted of two questions (see Appendix D). Participants then completed the Context-Dependent Transprejudice Scale (see Appendix E), Athletic Identity Measure (see Appendix F), and the Gender Identity Beliefs Scale (see Appendix G), in randomized order. Participants also answered two attention check items, "I breathe air" (appeared after the Context-Dependent Transprejudice Scale) and "I was born on Saturn" (appeared after the Gender Identity Belief Scale). The participants were then debriefed (see Appendix I). Once participants selected "submit" at the end of the survey, data was automatically entered into the database.

Results

The 13 participants who identified as something other than cisgender were excluded from the analyses. Additionally, results were similar when analyses included and excluded people who indicated a non-heterosexual orientation. Therefore, analyses that included participants of all sexual orientations are reported.

Attitudes toward the Transgender Athlete

Athlete Gender Identity and Hormone Status

A 2-way ANOVA was conducted to test the first two hypotheses that participants would be more accepting of the hypothetical transgender athlete when they were described as taking hormones than when they are not taking hormones, and when they were described as a transgender man than when they were described as a transgender woman. Independent variables were the hormone status (taking hormones vs not taking hormones) and the gender (transgender man vs transgender woman). Dependent variables were the total ratings of the vignette character.

See Table 1 for the means and standard deviations for the total ratings of the trans athlete as a function of the transgender athlete's gender identity and hormone status. There was a significant main effect of the gender identity of the vignette characters on the transgender athletic ratings of said vignette character as the trans man athlete was rated more positively than the trans woman athlete, $F(1, 289) = 11.22$, $p < .001$, $\eta_p^2 = .037$. There was not a significant main effect for the hormone status of the hypothetical transgender athlete, $F(1, 289) = .001$, $p = .976$, $\eta_p^2 = .000$. The interaction between the trans athlete's hormone status and gender identity was not significant, $F(1, 289) = 2.16$, $p = .142$, $\eta_p^2 = .007$.

Athlete Gender Identity and Participant Gender

A 2-way ANOVA was conducted to test the differences between how men and women rated the hypothetical transgender athlete when the athlete was described as a transgender man versus when they are described as a transgender woman. The independent variables were the gender of the athlete (transgender man vs transgender woman) and the gender of the participant (man vs woman). The dependent variable was the participants' ratings of the hypothetical transgender athlete. See Table 2 for means and standard deviations. There was a significant main effect for the gender of the athletes as both men and women rated the trans man athlete more positively than the trans woman athlete, $F(1, 274) = 12.39$, $p < .001$, $\eta_p^2 = .043$. There was not a significant effect for the gender of the participant, $F(1, 274) = .64$, $p = .426$, $\eta_p^2 = .002$. The interaction between the gender of the participant and the gender of the hypothetical transgender athlete was not significant, $F(1, 274) = .25$, $p = .615$, $\eta_p^2 = .001$.

Correlations among the Transgender Athlete Ratings and Dependent Variables

See Table 3 for correlations. Results indicated that both men and women who exhibited less gender-segregated and gender-integrated transprejudice were more accepting of the

transgender athlete. Participants who indicated a greater endorsement that gender identities are discrete indicated less acceptance of the transgender athlete and those who indicated a greater endorsement that gender identity is natural indicated a greater acceptance of the transgender athlete. For women participants, higher scores on the informativeness subscale also indicated a greater acceptance of the transgender athlete. Correlations between the total ratings of the hypothetical transgender athlete and the homogeneity subscale were not significant.

Participant Gender and Context-Dependent Transprejudice

We conducted a t-test for the third hypothesis that states cisgender women would report less gender-segregated transprejudice than cisgender men. See Table 4 for means and standard deviations. Results indicated that cisgender women reported less gender-segregated prejudice than cisgender men, $t(220) = -3.03$, $p = .001$, $d = -.45$, 95% CI [-.74, -.15]. Results were not significant for cisgender women and cisgender men on the gender-integrated prejudice scale, $t(218) = -.99$, $p = .162$, $d = -.15$, 95% CI [-.44, .15]. The gender-integrated prejudice subscale and the gender-segregated prejudice subscale were significantly correlated with each other, for both women, $r = .654$, and men, $r = .629$.

Athletic Identity and Transprejudice

A *t*-test was conducted to compare women's and men's athletic identity scores. Results indicated there was no significant difference between men's ($M = 3.49$, $SD = .71$) and women's ($M = 3.57$, $SD = .70$) athletic identity scores, $t(224) = .78$, $p = .435$, $d = .11$, 95% CI [-.17, .39].

See Table 3 for correlations. Correlations were calculated between scores on the Athletic Identity Measure and the Context-Dependent Transprejudice Scale to test the hypothesis that cisgender women who have a stronger attachment to their athletic identity will display more context-dependent transprejudice than cisgender women who are less attached to their athletic

identity. Athletic identity was not a significant correlate of gender-segregated nor gender-integrated prejudice for women or men. However, a stronger athletic identity for women predicted less acceptance of the transgender athlete, although the effect size was small, $r(156) = 045$, $p = -.161$, 95% CI[-.310, -.004]. Men's athletic identity was not a significant predictor of acceptance of the transgender athlete.

Gender Identity Beliefs Scale and Transprejudice

Correlations were calculated between the Gender Identity Beliefs subscales and the gender-segregated and gender-integrated transprejudice scales. See Table 3 for these correlations.

Women's and men's gender-integrated transprejudice was correlated with the beliefs that gender identity has clear boundaries and that someone may only belong in one category grouping (discreteness subscale), and is innate and biological, set early in life, unchangeable, and consistent across cultures (naturalness subscale). For women participants, gender-integrated transprejudice correlated positively with the belief that knowing a person's gender identity provides important information on other aspects of that person (informativeness subscale). Gender-integrated prejudice was not correlated with the belief that people view those inside their social group as more unique and those outside of their social group as more similar to each other (homogeneity subscale) for either women or men.

Women's and men's gender--segregated transprejudice was negatively correlated with the beliefs that gender identity has clear boundaries and that someone may only belong in one category grouping (discreteness subscale), and the belief that gender identity is innate and biological, set early in life, unchangeable, and consistent across cultures (naturalness subscale). The homogeneity subscale was significantly positively correlated with gender-segregated

transprejudice only for women participants. Gender-segregated transprejudice was not correlated with the belief that knowing a person's gender identity provides important information on other aspects of that person and that people can be easily grouped according to their gender identity (informativeness subscale) for neither women or men.

Exploratory Analyses

Team Sports versus Individual Sports Comparisons

A 2-way ANOVA was conducted to examine participants' attitudes regarding the hypothetical transgender athlete depending on the gender of the hypothetical athlete and the type of sport the participant played (team vs individual). The independent variables for this analysis were the gender identity of the transgender athlete and whether the participant played in a team, such as football or basketball, or an individual sport, such as golf or swimming. The dependent variable was the ratings of the transgender athlete.

Results indicated that there was not a significant main effect for the type of sport that the participant played, $F(1, 251) = .09$, $p = .761$, $\eta_p^2 = .000$. There was a significant effect for character gender as transgender men were viewed more positively than transgender women, $F(1, 251) = 11.26$, $p < .001$, $\eta_p^2 = .043$. The interaction effect between the type of sport that the participant played (team vs individual) and gender of the transgender athlete was statistically significant, $F(1, 251) = 4.96$, $p < .027$, $\eta_p^2 = .019$.

A post hoc *t*-test determined that participants who played on team sports were more positive towards the transman than the transwoman, $t(159) = 4.83$, $p < .001$, $d = .76$, 95% CI [.44, 1.08]. Participants who played on individual sports did not rate the transman significantly differently than the transwoman, $t(92) = .66$, $p = .511$, $d = .14$, 95% CI [-.27, .54]. See Table 5

for means and standard deviations. See Figure 1 for comparisons of participants' ratings of the hypothetical transgender athlete by gender identity and type of sport.

See Table 6 for means and standard deviations for athletic identity scores and gender-integrated and gender-segregated scores as a function of type of sport. Results indicated that athletic identity scores did not differ significantly between team and individual sports, $t(208) = 1.01$, $p = .312$, $d = .14$, 95% CI [-.13, .42]. Gender-segregated prejudice scores did not differ significantly between team and individual sports, $t(203) = -.70$, $p = .483$, $d = -.10$, 95% CI [-.38, .18]. Gender-integrated prejudice scores did not differ significantly between team and individual sports, $t(201) = -.66$, $p = .510$, $d = -.10$, 95% CI [-.38, .19].

Contact and Interaction with Transgender People

Athletes who had contact with transgender people exhibited lower gender-integrated prejudice, $t(215) = -3.01$, $p = .003$, $d = -.50$, 95% CI [-.83, -.17]. Contact with transgender athletes was not significant, $t(206) = -1.60$, $p = .111$, $d = -.25$, 95 CI [-.56, .06]. Similarly, athletes who had contact with transgender people exhibited lower gender-segregated prejudice, $t(217) = -5.23$, $p < .001$, $d = -.86$, 95% CI [-1.19, -.53]. Contact with transgender athletes was not significant, $t(208) = -1.75$, $p = .082$, $d = -.28$, 95% CI [-.58, .03]. Contact with trans people generally predicted more acceptance of the hypothetical transgender athlete, $t(258) = 5.12$, $p < .001$, $d = .73$, 95% CI [.44, 1.01], whereas contact with trans athletes did not, $t(252) = 1.16$, $p = .247$, $d = .17$, 95% CI [-.11, .45]. See Table 7 for means and standard deviations.

See Table 8 for correlations between the frequency of interactions and the transprejudice subscales and ratings of the hypothetical transgender athlete. Participants who had interacted with transgender athletes were more likely to have interactions with transgender people in general. Participants with more frequent interactions with transgender people and transgender

athletes were more likely to have positive attitudes toward the transgender athlete and to have lower gender-integrated and gender-segregated scores.

Participant Gender and Gender Identity Beliefs Comparisons

We ran *t*-tests to compare women and men on the Gender Identity Beliefs subscales. Men had higher scores on the discreteness subscale, $t(185) = -3.61$, $p < .001$, $d = -.56$, 95% CI [-.87, -.25]. Women had higher scores on the naturalness, $t(237) = 4.31$, $p < .001$, $d = .62$, 95% CI [.33, .90], and informativeness subscales, $t(185) = 2.17$, $p = .031$, $d = .34$, 95% CI [.03, .65] subscales. Homogeneity did not differ significantly between women and men, $t(184) = -.77$, $p = .443$, $d = -.12$, 95% CI [-.43, .19]. See Table 9 for means and standard deviations.

Sexual Orientation Comparisons

We ran *t*-tests to compare non-heterosexual and heterosexual participants' attitudes toward the trans athlete, their level of gender-integrated and gender-segregated prejudice, their athletic identity, and their scores on the Gender Identity Belief subscales. Non-heterosexual participants were more accepting of the hypothetical transgender athlete than heterosexual participants, $t(273) = -3.02$, $p = .003$, $d = -.44$, 95% CI [-.73, -.15]. Heterosexual participants exhibited higher levels of gender-integrated prejudice than non-heterosexual participants, $t(216) = 3.31$, $p < .001$, $d = .51$, 95% CI [.21, .82]. Heterosexual participants exhibited greater gender-segregated transprejudice than non-heterosexual participants, $t(273) = 5.99$, $p < .001$, $d = .93$, 95% CI [.61, 1.24]. Athletic identity was not significantly different for heterosexual and non-heterosexual participants, $t(222) = -.37$, $p = .712$, $d = -.06$, 95% CI [-.37, .25]. The difference between heterosexual and non-heterosexual participants on the informativeness scale was not significant, $t(184) = -.74$, $p = .458$, $d = -.13$, 95% CI [-.45, .20]. Heterosexual participants show a stronger belief that gender identification groups are unique and someone may only belong to

one group than non-heterosexual participants (discreteness subscale), $t(184) = 6.12$, $p < .001$, $d = 1.03$, 95% CI [.68, 1.37]. The belief that people view those inside their social group as more unique and those outside of their social group as more similar to each other was not significant (homogeneity subscale), $t(183) = 1.12$, $p = .265$, $d = .19$, 95% CI [-.14, .52]. Compared to heterosexual participants, non-heterosexual participants were more likely to believe that gender identity was natural (naturalness subscale), $t(234) = -7.04$, $p < .001$, $d = -1.08$, 95% CI [-1.40, -.77]. See Table 10 for means and standard deviations.

Compared to heterosexual participants, non-heterosexual participants were more likely to know a transgender person (94% versus 62.2%), $X^2(2, N = 276) = 23.33$, $p < .001$, $\phi = .291$. Non-heterosexual participants were also more likely to know a transgender athlete (39% versus 20.3%), $X^2(2, N = 276) = 9.02$, $p < .011$, $\phi = .181$.

Discussion

The present study expanded upon the work of Tanimoto and Miwa (2021). This study examined gender-segregated and gender-integrated prejudice, athletic identity, and beliefs about gender identity as predictors of attitudes toward transgender athletes, and attitudes of those playing team vs individual sports. Consistent with the results from Tanimoto and Miwa (2021), it was predicted that participants would be more comfortable with the hypothetical transgender athlete participating as a member of their sports team when they are taking hormones than when they are not taking hormones; the results did not support this hypothesis. Second, it was predicted that participants would be more comfortable with a hypothetical transgender athlete participating as a member of their sports team when they were described as a transgender man than when they were described as a transgender woman, which was supported by the results. The third hypothesis that cisgender women would express less prejudice toward transgender people

and less gender-segregated transprejudice than cisgender men was supported. We also predicted that cisgender women participants who have a strong athletic identity would exhibit more gender-segregated transprejudice than cisgender women with a weak athletic identity. The results did not support this hypothesis.

Lastly, it was predicted that participants who held strong beliefs regarding the discreteness, homogeneity, and informativeness of gender identity and weak beliefs about the naturalness of gender identity would report higher levels of both gender-segregated and gender-integrated transprejudice. Results showed that gender-integrated and gender-segregated subscales were associated with strong beliefs about discreteness and weak beliefs about the naturalness of gender identity. For women, gender-integrated transprejudice was associated with lower informativeness scores and gender--segregated transprejudice was associated with higher homogeneity scores. Gender-integrated transprejudice was not associated with homogeneity. Gender--segregated transprejudice was not associated with informativeness.

Exploratory analyses indicated that more positive attitudes toward the trans athlete were associated with less gender-segregated and gender-integrated transprejudice, and the belief that gender identity is natural and is not discrete. For women, the belief that knowing someone's gender identity provides important information on other aspects of that person indicated more positive attitudes toward the trans athlete.

We also explored participants' attitudes toward the trans athlete within the context of team vs individual sports, contact with trans athletes and participants' sexual orientation. Participants who played individual sports did not rate trans women and trans men athletes differently. Participants who played team sports had more positive attitudes toward the trans man

athlete than the trans woman athlete. Athletic identity, gender-integrated, and gender-segregated transprejudice were not significantly different for participants playing team vs individual sports.

Non-heterosexual participants were more accepting towards the transgender athlete and exhibited less gender-integrated and gender- segregated prejudice than heterosexual participants. Non-heterosexual participants were more likely to know a trans athlete and know a trans person than heterosexual participants. Athletic identity, informativeness, and homogeneity did not differ significantly between heterosexual and non-heterosexual participants. Heterosexual participants were more likely to believe that someone may only belong to one gender identity group and less likely to believe that gender identity is innate and natural than non-heterosexual participants.

Effects of Gender Identity and Hormone Status of Transgender Athletes

As predicted, participants rated the hypothetical transgender athlete more favorably when they were described as a transgender man than when they were described as a transgender woman. Similarly, Tanimoto and Miwa (2021) also found that that transgender men athletes were more accepted than transgender women athletes. Generally, people tend to have more negative attitudes toward transgender women than transgender men (Anderson, 2018; Chen & Anderson, 2017; Gazzola & Morrison, 2014; Glotfelter & Anderson, 2017; Perez-Arche & Miller, 2021). Jones et al. (2017) also found that transgender women often face greater discrimination than transgender men due to the societal perception that transgender women are thought to possess an athletic advantage, unlike transgender men, due to the belief that androgenic hormones create an athletic advantage and those who are assigned male at birth tend to possess more androgenic hormones than those assigned female at birth. Additionally, transmen may have an easier time passing as their preferred gender identity than trans women (American Psychological Association, 2009). The assumption that trans women athletes possess an athletic advantage due to hormonal reasons may pose a threat to the ingroup cohesion of

athletics (Pirlott & Cook, 2018). If trans women are presenting in a way that is more masculine, this may create an idea of unfairness to athletes, which is often used as the main argument for the negative reactions towards transgender athletes (Tagg, 2012). The idea of an even playing field being threatened could cause tension between transgender and cisgender athletes (Tanimoto & Miwa, 2021).

However, our study found that participants overall held relatively positive attitudes towards trans athletes. This could be due to the nature of our study. Due to the controversy surrounding transgender athletes (The Washington Post-University of Maryland, 2022), many collegiate level athletes may be uninformed on trans issues or unwilling to participate in a survey discussing trans athletic participation. Participants who were willing to take the survey may be more informed on trans athletic issues, know someone who is transgender and/or a trans athlete, and/or be more accepting of trans athletic participation.

Contrary to our prediction, participants did not rate the athlete any differently based on whether they were described as taking or not taking hormones. At the time of this experiment, only one research study had addressed attitudes toward transgender athletes who were taking hormones (Tanimoto & Miwa, 2021). Tanimoto and Miwa (2021) found that transgender athletes who received hormone treatment were more accepted than transgender athletes who were not taking hormones and that transgender women who were taking hormones were more accepted than transgender men who were taking hormones. It is worth noting that the Tanimoto and Miwa (2021) study was conducted in Japan and our study was conducted in the United States. It is possible that there are cultural differences in how collegiate athletes view transgender athletes taking hormones. American college athletes may be more concerned with gender presentation, such as being able to pass as their desired gender identity, than hormone status. If the trans

athlete more closely resembles the gender they identify as, it could reduce the threat to ingroup cohesion and affiliation. Because the trans athlete would be viewed as conforming to the norms of gendered sports if they are more able to pass as their preferred gender, other athletes may view a trans athlete on their team as an opportunity for friendship as opposed to a threat to their chosen sport (Pirlott & Cook, 2018). It is also possible that the participants in the Tanimoto and Miwa (2021) study were more informed on the effects of hormones than the participants in our study.

Predictors of Attitudes Toward Transgender Athletes

Acceptance of transgender athletes was associated with less gender-segregated and gender-integrated transprejudice and a belief that gender identities are natural. This aligns with research that shows trans prejudice is associated with less agreement that people are born transgender (Anderson, 2018, 2022; Landén & Innala, 2000; Woodford et al., 2012**).** A greater endorsement that gender identities are discrete indicated less acceptance of the transgender athlete. This matches with other research findings that show a greater endorsement of the gender binary predicts transprejudice (Prusaczyk & Hodson, 2020). If cisgender athletes are unable to categorize transgender athletes into a binary gender category, they may view the transgender athlete as a threat to ingroup cohesion as sports are often rigid in their gender categorizations (Pirlott & Cook, 2018). For women, informativeness was associated with a greater acceptance of trans athletes.

Results showed that participants who played team sports had more positive attitudes towards the transgender man athlete than the transgender woman athlete. Participants who played individual sports rated the transgender athlete similarly regardless of gender identity. Since transgender men are not thought to maintain an athletic advantage even if they are being

injected with testosterone (Jones et al., 2017), it could prevent people from seeing transgender men as being as threatening as transgender women athletes (Reeser, 2005). Thus, cisgender athletes may have an easier time believing that transgender men are not challenging the rigid gender categories of sports, therefore not threatening ingroup cohesion (Pirlott & Cook, 2018). Additionally, those who play team sports are required to rely on each other more than those who play individual sports during practices and athletic competitions. It may be easier for someone who plays an individual sport to feel indifferent toward the gender of another athlete because they do not rely on that person in order to win an athletic competition. Thus, an athlete in an individual sport may be in a position to see a trans athlete as a friendship opportunity, as opposed to a threat of ingroup team cohesion.

Results indicated that there was no difference between women's and men's athletic identity scores. Although the effect size was small, women's greater attachment to their athletic identity was associated with less positive attitudes toward trans athletes. This corresponds to Tanimoto and Miwa's (2021) study that found similar results. It is possible that cisgender women still view trans athletes as possessing an athletic advantage, thus, not conforming to the rigid gender binary associated with collegiate sports. Men's athletic identity was not a significant predictor of acceptance of the transgender athlete.

Non-heterosexual participants were more likely to know a transgender athlete and be more accepting of transgender athletes than heterosexual participants. This is consistent with research that shows those who have non-heterosexual orientations tend to express less trans prejudice (Anderson, 2022). Since non-heterosexual athletes are more likely to face stigmatization than heterosexual athletes (Barragan, 2015), they may be more likely to feel allied

with transgender athletes (Craig & Richeson, 2016). Since both groups experience high levels of stigma, non-heterosexual athletes may have more compassion towards transgender athletes.

Contact with transgender people in general, but not trans athletes specifically, predicted less transprejudice and more positive attitudes towards transgender athletes. Participants who had frequent contact with trans people and trans athletes expressed more positive attitudes towards transgender athletes than those with limited interactions with the transgender community. This is in line with research that shows that one of the most consistent ways to reduce transprejudice is to have contact with the transgender community (Flores et al., 2018; King et al., 2009). Knowing and frequently interacting with a transgender person may allow someone to see trans athletes as affording them a friendship opportunity as opposed to a threat to the sports team (Pirlott & Cook, 2018).

Factors Associated with Context-Dependent Transprejudice

For both women and men, the gender-integrated prejudice subscale and the gender-segregated prejudice subscales were significantly correlated with each other. Cisgender women reported less gender-segregated prejudice than cisgender men, which agrees with research that shows cisgender women tend to have more positive attitudes towards the transgender community than do cisgender heterosexual men (Flores et al., 2020; Glotfelter & Anderson, 2017; Nagoshi et al., 2008; Tebbe & Moradi, 2012). Cisgender men are more likely than cisgender women to view transgender women as a threat to their safety and privacy (Stones, 2017). Because cisgender men are more likely than cisgender women to view transgender women as men who are lying about their gender, they may be more likely to view themselves as needing to protect women in gender-segregated spaces, such as bathrooms and locker rooms (Stones, 2017). Cisgender men viewing transgender women as lying about their gender, could activate an

unwanted mating threat against cisgender women, and thus, make cisgender men less accepting of transgender people in gender-segregated spaces (Pirlott & Cook, 2018)

There was no difference between cisgender men and cisgender women on the gender-integrated prejudice scale. Civil rights were one of the factors assessed by the gender-integrated subscale. Most Americans support laws to protect transgender individuals from discrimination in jobs, housing, and public spaces (Parker et al., 2022); this may be true for both cisgender women and cisgender men.

Participants who showed less gender-segregated and gender-integrated transprejudice were more likely to hold beliefs that gender identity categories do not have clear boundaries and that gender identity is innate and biological. This is consistent with research demonstrating that the belief that people are born with a transgender identity or that biological factors cause a transgender identity, e.g, naturalness, is associated with more positive attitudes toward transgender people (Anderson, 2022; Claman, 2007; Landén & Innala, 2000; Woodford et al., 2012). For women, less gender-integrated trans prejudice was associated with the belief that knowing someone's gender identity provides information about the person in general. Knowing personal details about someone, such as their gender identification, might increase how comfortable a cisgender person would be with a transgender person. Thus, the cisgender person might be less likely to see the transgender person as threatening ingroup cohesion or as an unwanted mating threat (Pirlott & Cook, 2018)

Gender-integrated trans prejudice was not associated with the belief that people with the same gender identity are very similar to each other. This could be due to the nature of the space. If the space they are in is already gender-integrated, there is no need to view someone as "the outsider" of a social group, thus, it poses no threat to ingroup cohesion (Pirlott & Cook, 2018).

Athletic identity was not a significant predictor for gender-segregated and gender-integrated prejudice for women or men. Since attachment to athletic identity increases with level of sport participation, it is possible that college athletes are overall less attached to their athletic identity than professional athletes (Good et al., 1993). Therefore, athletic identity would not affect how a collegiate level athlete perceives a transgender athlete in a gender-segregated or gender-integrated space.

Athletes who had contact with transgender people exhibited lower gender-integrated and gender-segregated transprejudice. Contact with transgender athletes was not significant for predicting trans prejudice attitudes. Additionally, participants who had frequent interactions with transgender people were less likely to exhibit gender-integrated and gender-segregated prejudice. This follows research that shows transprejudice is reduced with contact (Flores et al., 2018; King et al., 2009).

Heterosexual participants exhibited more gender-integrated and gender-segregated prejudice than non-heterosexual participants. Non-heterosexual people tend to express less trans prejudice than heterosexual people (Anderson, 2022), Additionally, non-heterosexual participants were more likely to know a transgender person. Gender and sexual minorities are often associated with one another; therefore, non-heterosexual people would likely interact more with transgender people and this greater contact could reduce transprejudice even more among non-heterosexual people (Butler et al., 2016).

Gender Identity Beliefs Scale

Results indicated that cisgender men showed a greater belief that sexual orientation has clear boundaries and that someone may only belong in one category grouping than cisgender women. Cisgender women were more likely to believe that gender identity is natural and

knowing someone's gender identity can indicate a lot about a person in general. This is consistent with research that shows women tend to have more positive attitudes towards the transgender community than do cisgender heterosexual men (Flores et al., 2020; Glotfelter & Anderson, 2017; Nagoshi et al., 2008; Tebbe & Moradi, 2012). If women are more likely to have a positive attitude toward the transgender community, they may be more likely to believe that gender does not have to fall into a binary category and that gender identity is natural. The belief that people view those inside their social group as more unique and those outside of their social group as more similar to each other did not differ between men and women participants. This could be due to all of the participants being athletes, thus seeing all other athletes as part of their social group.

Heterosexual participants indicated a stronger belief that gender identity groups are unique and someone may only belong to one group than non-heterosexual participants. Non-heterosexual participants were more likely to believe that gender identity was natural (Anderson, 2022). These results correspond to other results that show non-heterosexual participants were more likely to know a transgender person than heterosexual participants. Thus, non-heterosexual participants may be more accepting of diverse gender identities than heterosexual people. There was not a significant difference between heterosexual and non-heterosexual participants for the beliefs that knowing someone's gender identity indicates knowing a lot about a person and that people view those inside their social group as more unique and those outside of their social group as more similar to each other.

Limitations and Strengths

This study has several strengths, the first being its contribution to research on the transgender population and, more specifically, collegiate athlete's attitudes towards transgender

athletic participation. Research on the transgender population is limited and research on transgender athletes is even more limited. To our current knowledge Tanimoto and Miwa (2021) is the only other research study that addresses attitudes towards transgender athletes who are taking hormones. We also examined attitudes toward trans athletes among collegiate athletes who played team versus individual sports. Another strength is the number of athletes from different sports that participated. Having a variety of sports allows us to capture a greater diversity of attitudes of college athletes. Other strength includes this study include our ability to make comparisons between heterosexual and non-heterosexual athletes. We also examined other variables that may be important in predicting attitudes toward trans athletes, such as context-dependent transprejudice and beliefs about gender identity. Additionally, we adapted the Sexual Orientation Beliefs Scale (Arseneau et al., 2013) to examine gender identity beliefs. We found this to be an appropriate comparison because sexual prejudice and transprejudice are significantly correlated (Glotfelter & Anderson, 2017; Hill & Willoughby, 2005; Nagoshi et al., 2008; Norton & Herek, 2013). Our study may contribute to the further validation of the Sexual Orientation Beliefs Scale as it has not extensively been used as a measure for other gender or sexual orientation studies.

This study has the known limitations of survey research, such as not knowing whether people are being completely honest in their responses. There may also be factors that contribute to transprejudice that are not included in the study, such as political affiliations, religiosity, and beliefs regarding gender roles (Brassel & Anderson, 2020; Lipka & Tevington, 2022; Parker et al., 2022). We developed the ratings of the transgender athlete and although the face and content validity seem good, further studies would be needed to examine convergent and discriminant validity. Additionally, there are limitations associated with using a convenience sample of

college athletes. For example, the results lacked generalizability because the athletes that responded to our survey may not be representative of college athletes in the U.S. Students who have extremely negative or extremely positive views of transgender athletes may be more likely to take the survey in order to express their strong opinions. In addition, professional athletes, who may have more at stake, may feel more prejudiced about trans athletic participation. High school or middle school-level athletes may have less at stake and may feel less prejudiced about trans athletic participation. However, there are several states that have limited trans athletic participation in middle and high school and these policies may have impacted the attitudes of adolescents for the better or for the worse. For example, the governor of South Dakota signed two executive orders that ban transgender girls from participating in girls' K-12 and college sports teams (Levin, 2021). The governor of Florida signed a law that bans transgender girls and women from participating in girls' middle school though high school and college sports teams (Levin, 2021).

Another limitation is the sample demographics. The present study's sample was predominately White, straight, cisgender women. It is possible that other races and ethnicities may hold different opinions. For example, those of Caucasian descent typically hold more positive attitudes toward sexual and gender minorities than those of African American descent (Greene, 2009; Vincent et al., 2009; Woodford, 2012).

It is also well noted that women consistently have more positive attitudes towards the transgender community than do cisgender heterosexual men (Flores et al., 2020; Glotfelter & Anderson, 2017; Nagoshi et al., 2008; Tebbe & Moradi, 2012), which could have skewed the results. Due to the low number of participants with non-cisgender identities, we could not fully explore the attitudes of gender minorities toward transgender athletic participation. It would also

be worthwhile to investigate attitudes toward athletes with nonbinary identities. Additionally, the participants in our sample were relatively young. This could sway the results as young adults tend to have more positive attitudes toward trans people than older adults (Parker et al., 2022).

Although we had participants engaged in a wide variety of sports, grouping the sports into categories of team versus individual may have obscured nuanced opinions toward trans athletes. For example, football and softball are both team sports, but these athletes may hold differing opinions regarding trans athletes due to the high contact versus low contact nature of the sport.

Implications and Future Research

Knowing that transgender athletes face prejudice when participating in athletics is important as it is impossible to solve discrimination without first acknowledging its existence, or why it exists. Understanding how and why transgender athletes experience discrimination allows humanity to step forward with social change and create safer spaces for people of all genders. Because this work further demonstrates the existence of negative attitudes towards transgender athletes, particularly toward trans women athletes, future research should focus on attempting to change those negative attitudes by exploring methods to effectively dismantle trans prejudice.

The results of this research may also be of benefit to clinical and counseling psychologists as well as other health professionals who work with athletes who identify as transgender. Knowing trans athletes face greater prejudice than cisgender athletes may help clinical and counseling psychologists understand the additional stressors that trans athletes face. Additionally, these results may inform coaches, physicians, physical therapists, and trainers about the additional difficulties of trans athletes and help them to facilitate a better athletic atmosphere (Sample, 2022).

Finally, making transgender athletes feel welcome in sports--related spaces, like gyms, athletic fields, or locker rooms, could help the transgender community. For example, there is a high prevalence of depression and anxiety within the transgender community that could be alleviated by engaging in sports and other physical activities (De Moor et al., 2006; Dhejne et al., 2011). Another example is that sports contribute to maintain a healthy weight, which is necessary to meet the required qualifications to undergo gender affirming surgeries, if that is something desired by the individual who identifies as transgender (Coleman et al., 2012).

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Table 1

Means and Standard Deviations for Transgender Athlete as a Function of the Transgender Athlete's Gender Identity and Hormone Status

	Hormone Status	
	Taking Hormones	Not Taking Hormones
Trans Man	4.53 (1.42)	4.79 (1.39)
Trans Woman	4.20 (1.63)	3.93 (1.68)

Note. Sample sizes were as follows: transgender man who is taking hormones, $n = 78$; transgender man who is not taking hormones, $n = 71$; participants who were assigned to the vignette that described Riley as a transgender woman who is taking hormones, $n = 75$, transgender woman who is not taking hormones, $n = 69$.

Table 2

Means and Standard Deviations for Transgender Athlete as a Function of the Transgender Athlete's Gender Identity and the Participants' Gender Identity

	Participants' Gender Identity	
	Women	Men
Trans Man	4.66 (1.36)	4.60 (1.53)
Trans Woman	4.02 (1.64)	3.74 (1.71)

Note. Sample sizes were as follows: women with the transgender man vignette, $n = 93$; men with the transgender man vignette $n = 50$; women with the transgender woman vignette , $n = 108$; men with the transgender woman vignette , $n = 27$.

Table 3

Correlations Among Trans Athlete Ratings, Athletic Identity Scores, Gender-Segregated and Gender-Integrated Transprejudice Scores, and Gender Identity Beliefs (GIB) Subscale Scores for Women and Men

	Trans Ath Ratings	Athletic Identity	GS	GI	Discret	Homog	Natural	Inform
Trans Ath Ratings		-.16*	-.48***	-.32***	-.46***	.04	.51***	.20*
Athletic Identity	.18		.14	.13	.09	.12	-.05	-.04
GS	-.55***	.09		.65***	.75***	.20*	-.80***	-.14
GI	-.34**	-.02	.63***		.51***	.11	-.54***	-.22*
Discret	-.42***	-.01	.65***	.45***		.23**	-.78***	-.11
Homog	-.09	.11	.22	-.04	.22		-.22*	.36***
Natural	.48***	.06	-.68***	-.50***	-.74***	-.17		.03
Inform	.11	.06	-.08	-.14	-.08	.15	.04	

Note. Women's correlations are above the diagonal (n = 120 to 170); men's correlations are below the diagonal (n = 59 to 69). Trans Ath Ratings = Ratings of hypothetical trans athlete; GS = Gender-Segregated Transprejudice; GI = Gender-Integrated Transprejudice; Discret = GIB Discreteness subscale; Homog = GIB Homogeneity subscale; Natural = GIB Naturalness subscale; Inform = GIB Informativeness subscale. Higher scores indicated more acceptance of the trans athlete (Trans Athlete Ratings, 1-6); stronger athletic identities (Athletic Identity, 1-5); more gender-segregated and gender-integrated transprejudice (GSP and GIP, 1-7); a stronger belief that gender identity groups have clear and distinct boundaries (Discreteness, 1-5); a stronger belief that people with the same gender identity are very similar to each other (Homogeneity, 1-5); a stronger belief that having different gender identities is natural (Natural, 1-5); and a stronger belief that gender identity is an important characteristic of people (Informative, 1-5).
*p < .05. **p < .01. ***p < .001.

Table 4

Means and Standard Deviations for the Gender-Integrated (GI) and Gender-Segregated (GS) Transprejudice Subscale Scores for Women and Men

	Subscale	
	GI	GS
Women	1.73 (1.24)	2.91 (1.71)
Men	1.91 (1.32)	3.67(1.73)

Note. Sample sizes were 156 to 157 for women and 64 to 65 for men. Higher scores indicate more transprejudice.

Table 5

Means and Standard Deviations for the Transgender Athlete Ratings as a Function of Gender Identity of Transgender Athlete and Type of Sport (Team versus Individual)

	Type of Sport	
	Individual	Team
Trans Man	4.38 (1.52)	4.87 (1.23)
Trans Woman	4.16 (1.69)	3.79 (1.59)

Note. Sample sizes were as follows: Individual sport and trans man athlete, n = 50; Individual sport and trans woman athlete, n = 44; Team sport and trans man athlete, n = 80; Team sport and trans woman athlete, n = 81.

Table 6

Means and Standard Deviations for Athletic Identity Scores and Gender-Integrated (GI) and Gender-Segregated (GS) Transprejudice Scores as a Function of Type of Sport (Team versus Individual)

	Type of Sport	
	Individual	Team
Athletic Identity Score	3.49 (.72)	3.59 (.69)
GI	1.87 (1.39)	1.75 (1.21)
GS	3.23 (1.92)	3.05 (1.65)

Note. Sample sizes were as follows- participants who played an individual sport, $n = 79$ to 82; participants who played a team sport, $n = 124$ to 128.

Table 7

Means and Standard Deviations for Transgender Athlete Ratings and Gender-Integrated (GI) and Gender-Segregated (GS) Transprejudice Subscale Scores as a Function of Contact with Trans People and Trans Athletes

	Trans People		Trans Athletes	
	Contact	No Contact	Contact	No Contact
Trans Athlete Ratings	4.58 (1.44)	3.50 (1.63)	4.46 (1.60)	4.19 (1.62)
GI	1.64 (1.17)	2.25 (1.41)	1.57 (1.00)	1.90 (1.38)
GS	2.74 (1.61)	4.16 (1.82)	2.77 (1.80)	3.25(1.76)

Notes. Sample sizes were as follows: Contact with trans people, n = 171 to 194; No contact with trans people, n = 46 to 66; Contact with trans athletes, n = 55 to 67; No contact with trans athletes, n = 153 to 187.

Table 8

Correlations Between Frequency of Interactions with Transgender People and Athletes, Gender-Integrated (GI), and Gender-Segregated (GS) Transprejudice Scores

	Trans People Interactions	Trans Athlete Interactions	Trans Athlete Ratings	GI	GS
Trans People Interactions		.53***	.36***	-.33***	-.43***
Trans Athlete Interactions			.23***	-.23***	-.24***

Note. Sample sizes = 220 to 279. Higher scores indicated more frequent interactions with trans people and trans athletes, more acceptance of the hypothetical trans athlete, and more gender-integrated and gender-segregated transprejudice.

***$p < .001$.

Table 9

Means and Standard Deviations for Gender Identity Beliefs Subscale Scores for Women and Men

	Participant Gender	
	Women	Men
Discreteness	2.46 (1.06)	3.02 (.81)
Homogeneity	2.54 (.69)	2.62 (.59)
Naturalness	3.24 (1.03)	2.64 (.82)
Informativeness	3.67 (.87)	3.37 (.87)

Note. Sample sizes were 1*25 to 170 women and 61 to 69 men.*

Table 10

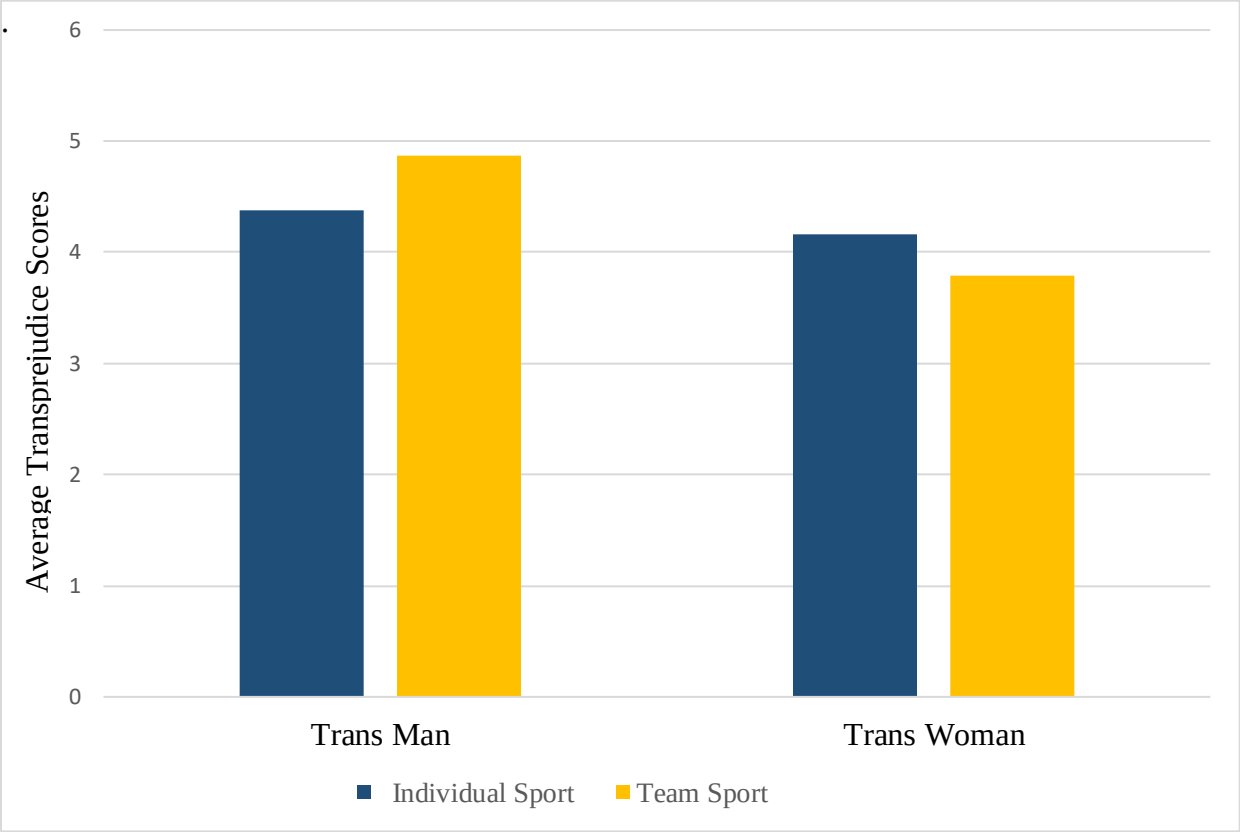
Means and Standard Deviations for Trans Athlete Ratings, Gender-Integrated and Gender-Segregated Transprejudice Scores, Athletic Identity Scores, and Gender Identity Beliefs Subscale Scores for Heterosexual and Non-heterosexual Participants

	Participant Sexual Orientation	
	Heterosexual	Non-heterosexual
Trans Athlete Ratings	4.15 (1.61)	4.84 (1.30)
GSP	3.52 (1.74)	2.02 (1.23)
Athletic Identity	3.54 (.67)	3.58 (.81)
Discreteness	2.89 (1.01)	1.94 (.65)
Homogeneity	2.60 (.67)	2.47 (.63)
Naturalness	2.83 (.98)	3.83 (.69)
Informativeness	3.54 (.88)	3.64 (.88)

Note. Sample sizes were 138 to 216 heterosexual participants and 47 to 59 non-heterosexual participants.

Figure 1

Participants' Ratings of the Hypothetical Transgender Athlete by Gender Identity (Trans Man vs Trans Woman) and Type of Sport (Individual vs Team)



Note. Sample sizes were as follows: individual sport, $n = 94$; team sport, $n = 161$; trans man vignette character, $n = 130$; trans woman vignette character, $n = 125$.

Appendix A

Recruitment Statement

College Athletes' Attitudes toward Transgender Athletes' Participation in Collegiate Level Sports

You are invited to participate in a research study conducted by Jaclyn Merrill and Dr. Veanne Anderson in the Department of Psychology at Indiana State University. We are interested in college athletes' attitudes towards people of different gender identities. This survey will take approximately 30 minutes to complete. To participate you must be a collegiate athlete, be at least 18 years of age, and comprehend English. Finally, please share the information about this study with other people you think may be interested in participating.

Appendix B

Demographics Questionnaire

1. What is your age? _____ years

2. What sex were you assigned at birth?
    a. Woman
    b. Man
    c. Intersex
3. Please select the option below that reflects your current gender identity.
    a. Woman
    b. Man
    c. Male-to-Female (MTF)/Transgender Woman/Trans woman
    d. Female-to-Male (FTM)/Transgender Man/Trans man
    e. Genderqueer
    f. Agender
    g. Nonbinary, gender nonconforming (neither exclusive male nor female)
    h. Other (please specify) _____

4. Please select the option below that best reflects your race or ethnicity.
    a. White/Caucasian
    b. Hispanic
    c. Latinx
    d. Asian/Asian American
    e. Black/African American
    f. Native American/American Indian
    g. Middle Eastern
    h. Multiracial (please specify) _____
    i. Other (please specify) _____

5. Please select the option below that reflects your current sexual identity.
    a. Bisexual
    b. Lesbian/ WLW
    c. Gay/ MLM
    d. Pansexual
    e. Asexual
    f. Heterosexual/Straight
    g. Demisexual
    h. Other (please specify) _____

6. Please select the option below which represents the highest degree or level of school you have currently completed.
    a. Less than a high school diploma
    b. High School Diploma/GED
    c. Some College
    d. College Diploma
    e. Some Graduate Studies
    f. Graduate Degree (e.g., Masters, PhD., PsyD, etc.)

7. Do you currently play a collegiate level sport?
    a. Yes
    b. No

8. If no, have you previously played a collegiate level sport?
    a. Yes
    b. No

9. If yes, please select the sport(s) you currently play at a collegiate level.
    a. Football
    b. Basketball
    c. Golf
    d. Tennis
    e. Rifle
    f. Gymnastics
    g. Rugby
    h. Track
    i. Cross Country
    j. Baseball
    k. Softball
    l. Volleyball
    m. Wrestling
    n. Cheerleading
    o. Swimming and/or Diving
    p. Rowing
    q. Lacrosse
    r. Field Hockey
    s. Ice Hockey
    t. Body Building and/or Weightlifting
    u. Bowling
    v. Other (please specify) _____

Appendix C

Trans Athlete Vignettes and Ratings

Please read the paragraph below that describes Riley, a person who identifies as transgender. A transgender person is someone who does not identify with the sex they were assigned at birth.

Transgender woman hormone- Riley was assigned male at birth but currently identifies as a transgender woman. At this time, she is taking hormones in order to make her physical appearance more feminine. Riley has participated in sports most of her life and is interested in continuing her athletic participation at the collegiate level.

Transgender woman no hormone- Riley was assigned male at birth but currently identifies as a transgender woman. At this time, she is **not** undergoing hormone therapy and **not** taking any hormones. Riley has participated in sports most of her life and is interested in continuing her athletic participation at the collegiate level.

Transgender man hormone- Riley was assigned female at birth but currently identifies as a transgender man. At this time, he is taking hormones in order to make his physical appearance more masculine. Riley has participated in sports most of his life and is interested in continuing his athletic participation at the collegiate level.

Transgender man no hormone- Riley was assigned female at birth but currently identifies as a transgender man. At this time, he is **not** undergoing hormone therapy and **not** taking any hormones. Riley has participated in sports most of his life and is interested in continuing his athletic participation at the collegiate level.

Indicate how strongly you agree or disagree with the following statements about Riley, the transgender athlete you just read about.

1	2	3	4	5	6
Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree

1. Riley should be allowed to play team sports.
2. Riley should be allowed to play individual sports.
3. Riley should be allowed to participate in sports with little to no physical contact with other athletes.
4. Riley should be allowed to participate in sports with medium to high physical contact with other athletes.
5. I would be comfortable having Riley as a member of my sports team.
6. Riley should be allowed to participate in sports that have weight requirements.
7. Riley should be allowed to participate in sports that require speed.
8. It is fair that Riley should be allowed to play college level sports.

Appendix D

Manipulation Check

Please choose the best answer.

1) What is Riley's gender?
   a. Transgender Man
   b. Transgender Woman

2) Is Riley taking hormones?
   a. Yes
   b. No

Appendix E

Context-Dependent Transprejudice Scale

Please indicate how strongly you agree or disagree with the following statements. A transgender person is someone who does not identify with the sex they were assigned at birth.

Scale from 1-7, 1 being strongly agree and 7 being strongly disagree.

1	2	3	4	5	6	7
Strongly Agree	Agree	Somewhat Disagree	Neutral	Somewhat Agree	Disagree	Strongly Disagree

1. I believe any student who identifies as transgender should be given the same school-related opportunities as any other students (e.g., classroom, extracurricular).
2. I believe transgender individuals should be able to use whichever public restroom makes them feel most comfortable.
3. Transgender individuals should be able to use the locker rooms that align with the gender they identify with, as opposed to their sex assigned at birth.
4. I believe transgender job candidates should be given equal opportunity for employment and should not be subject to discrimination based on their gender identity.
5. Transgender individuals should be able to play on whichever sports team aligns with their identified gender (i.e. if they identify as male they should be allowed to play on a male sports team) regardless of their sex assigned at birth
6. A transgender college student should be able to live in whichever gendered dormitory aligns with the gender they choose to identify with.
7. I would not mind sharing a public restroom with a transgender individual.
8. I feel people should use the public restroom that aligns with their sex assigned at birth.
9. I believe transgender individuals should receive equal healthcare coverage.

Appendix F

Athletic Identity Measure

Please indicate how strongly you agree or disagree with the following statements.

Scale from 1-5, 1 being completely disagree and 5 being completely agree

1----------2----------3----------4----------5

Completely Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Completely Agree

1. I consider myself an athlete.
2. I have many goals related to sports.
3. Most of my friends are athletes.
4. Sports are the most important part in my life.
5. I spend more time thinking about sports than anything else.
6. I need to participate in sports to feel good about myself.
7. Other people see me mainly as an athlete.
8. I feel bad about myself when I do poorly in sports.
9. Sports are the only important thing in my life.
10. I would be very depressed if I were injured and could not complete in sports.

Appendix G

Gender Identity Beliefs Scale

Please indicate how strongly you agree or disagree with the following statements. A transgender person is someone who does not identify with the sex they were assigned at birth and a cisgender person is someone whose gender identity matches their sex assigned at birth.

Scale from 1-5, 1 being strongly disagree and 5 being strongly agree.

1----------2----------3----------4----------5

Strongly Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Strongly Agree

1. Gender identity is innate.
2. Individuals choose their gender identity
3. Biology is the main basis of an individual's gender identity.
4. Social and environmental factors are the main basis of an individual's gender identity.
5. People have control over keeping or changing their gender identity.
6. The existence of different gender identities is natural.
7. If someone comes out as transgender, they were probably that gender all along.
8. The percentages of people in different gender identity groups are roughly the same all over the world.
9. It is impossible to truly change one's gender identity.
10. The idea that individuals have a "gender identity" is a social invention.
11. Gender identity is set early on in life.
12. Gender identity is a category with distinct boundaries: A person is either cisgender, transgender, agender, etc.
13. Gender identity is a category with clear boundaries: A person is either cisgender, transgender, agender, etc.
14. People who identify as transgender are confused about their true gender identity.
15. A person has only one true gender identity.
16. People may reasonably identify as two gender identities at the same time.
17. Individuals with the same gender identity seem to be connected to one another by some invisible link.
18. People who have the same gender identity are very similar to one another.
19. There are more similarities than differences among people who have the same gender identity.
20. It is possible to know about many aspects of a person once you know their gender identity.
21. It is usually possible to know a person's gender identity without being told.
22. People who share the same gender identity pursue common goals.
23. Knowing a person's gender identity tells you a lot about them.
24. People who have the same gender identity interact frequently with one another.
25. People with the same gender identity share a common fate.

26. Gender identity is an important characteristic of people.
27. A person's gender identity is an important attribute.
28. If you don't know a person's gender identity you can't really say that you know that person.
29. Most people view their gender identity as important to them.
30. It's useful to group people according to their gender identity.
31. It is possible to be 'partially' or 'somewhat' transgender or cisgender

Appendix H

Informed Consent Document

You are being invited to participate in a research study by Jaclyn Merrill and Dr. Veanne Anderson at Indiana State University. The purpose of this study is to investigate attitudes toward athletics and people of different gender identities. This document will help you decide if you want to participate in this research by providing information about the study and what you are asked to do.

One reason you may want to participate in this research is that you may learn about how your attitudes toward athletics and people of different gender identities might influence your own experiences with being an athlete. One reason you might not want to participate in this research is that answering some of the questions might result in distress due to examining your own attitudes toward gender and your participation in sports.

If you decide to participate, you will click on a link below that says "Agree." You will then be routed to an Indiana State University website where you will be asked to complete a questionnaire related to background characteristics (e.g., age, sex assigned at birth, current gender identity, race, sexual orientation, and your participation in sports). You will also be asked to complete questionnaires on attitudes toward gender and athletes. Completion of the surveys should take about 30 minutes. You have been asked to participate in this research because you are at least 18-years old.

The choice to participate or not is yours; participation is entirely voluntary. You can decline to complete the online survey or withdraw at any time. If you decide not to participate, to not answer some questions, or withdraw, you will not lose any benefits which you may otherwise be entitled to receive.

Every effort will be made to protect your confidentiality through the use of an anonymous online survey. No identifying information will be obtained on the surveys, such as name, student identification number, birth date, or other personal identification. All data will be stored on a password protected computer hard drive and thumb drive and only the researchers will have access to the data.

Although every effort will be made to reduce risks, there are still some potential risks to this study. These include the possibility that you may experience some mild anxiety when completing some of the questions due to examining your own attitudes and experiences. An additional risk is that anonymity cannot be guaranteed over the internet. Additionally, there is a risk of a breach of confidentiality if you use a computer that is not your own, you use a public computer, or you use your computer in a public setting. The risks of participation are minimal and not expected to be greater than what you might encounter in everyday activities.

It is unlikely that you will benefit directly by participating in this study. However, because not much psychological research had been done on this topic, the research results may provide more information on factors that are associated with people's perceptions of athletes of

different genders. Furthermore, the results from this study may benefit people who work with athletes of different genders, such as coaches, athletic directors, and other athletes.

If you have any questions, please contact the principal investigator, Jaclyn Merrill, Experimental Psychology Masters Student, at jmerrill@sycamores.indstate.edu. You can also contact the faculty sponsor, Dr. Veanne Anderson, Department of Psychology, Indiana State University, Terre Haute, IN 47809 at (812) 237-2459 or veanne.anderson@indstate.edu.

If you have any questions about your rights as a research subject or if you feel you have been placed at risk, you may contact the Indiana State University Institutional Review Board (IRB) by mail at Indiana State University, Office of Sponsored Programs, Terre Haute, IN 47809, by phone at (812) 237-3088 or by email at irb@indstate.edu.

Please save a copy of this form for your records and click "Agree" below to begin the study. If you select "Disagree," then you will automatically exit the survey and be unable to complete it in the future.

Agree

Disagree

Appendix I

Debriefing Form

Thank you for participating in this study. In this study we are interested in examining factors that are associated with college athlete's attitudes towards transgender athletes and their participation in collegiate level sports. We expect results to indicate that transgender athletes who are taking hormones, playing lower contact sports, and identify as a transgender woman will be more accepted as athletes. We also expect that cisgender, heterosexual women and sexual minorities will have lower levels of prejudice than cisgender, heterosexual men. However, we expect that all cisgender participants who strongly identify with their athletic identity will exhibit more prejudice toward transgender athletes.

If you experience any distress as a result of participating in this study, you can access psychological services at Indiana State University's Student Counseling Center (812-237-3939) or the Psychology Clinic in Root Hall (812-237-3317). Participants not attending Indiana State University can seek support through these online resources: https://www.outcarehealth.org/ and http://www.mentalhealthamerica.net/.

If you have any questions or if you are interested in the results of the study, please contact Jaclyn Merrill by email at jmerrill@sycamores.indstate.edu or Dr. Veanne N. Anderson, Department of Psychology at 812-237-2459 or email her at veanne.anderson@indstate.edu