

Experiences of the Transgender and Gender Non-Conforming Community in the University Setting

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ABSTRACT

Background: Transgender and gender non-conforming individuals face daily challenges in higher education due to a lack of gender-inclusive resources. This shortcoming is rooted in the minimal knowledge about what barriers affect this population.

Aims: The aims of this study were to identify fitness-related barriers faced by the transgender community in higher education and emphasize the need to develop fitness standards for the transgender population to reduce those barriers in higher education.

Methods: Participants completed one or both aspects of this study. A survey was sent to students to gather information about experiences in fitness at a university and how it relates to their gender. Several of the survey respondents then agreed to participate in a series of fitness assessments to evaluate muscular strength, endurance, and body composition.

Results: Seventy-nine students responded to the survey ($n = 68$ cisgender females, $n = 5$ cisgender males, $n = 2$, non-binary, $n = 4$ transgender males). Proportionally, more transgender and non-binary people (84%) felt that gendered fitness standards did not apply to them when compared to cisgender people (31%). Further, more transgender and non-binary respondents (50%) reported that they were not comfortable working out in all areas of their gym when compared to the cisgender respondents (37%). Twenty-eight students participated in the fitness assessment. The BOD POD assessment of body composition utilizes gender to calculate body fat percentage. When using both male and female classifications, results were not different, meaning the estimated body fat percentage was calculated as the same despite a different gender in the calculation.

Conclusions: This study begins to identify fitness-related barriers faced by the transgender community in higher education. Additionally, these small-scale results provide a starting point for future research on developing gender-neutral fitness standards.

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BACKGROUND

Physical activity and fitness are important components of college life. Campus recreation, club sports, and sponsored weekend activities and adventure trips expose students to the fitness industry. This industry is known for strongly gendered tendencies, whether in athletic clothing, supplements, locker rooms, or group fitness classes. These types of tendencies are increasingly problematic in our diversifying world.

According to the U.S. Census from 2016, the transgender population (those whose gender identity or gender expression does not correspond with their sex assigned at birth) only made up about 0.5% of the country's total population (Meerwijk & Sevelius, 2017). A recent study revealed that the transgender population has more than doubled in the last six years, now making up 1.4% of the U.S. population, with over 25% being college-age (Ghorayshi, 2022). Therefore, it is no surprise that a growing concern of the Lesbian, Gay, Bisexual, and Transgender (LGBT+) community is how transgender and gender non-conforming (TGNC) students fit into the higher education realm. Gender non-conforming individuals are those who do not follow stereotypes regarding how they act or look based on their sex assigned at birth. Most recently, the topic of TGNC inclusion in competitive sports has gained media attention; however, this is only one of the challenges that TGNC students face on college campuses (Goldberg, 2018).

Physical activity and exercise are vital to maintaining a healthy body and mind, with mental health being a leading benefit of physical activity and exercise for the LGBT+ community (Devine-White, 2018). Although critical to physical and mental well-being, people in the LGBT+ community tend to have an unhealthy relationship with fitness, nutrition, and their bodies (Centers for Disease Control and Prevention, 2017). Gay men are at higher risk for developing eating disorders, and lesbians and bisexual men and women tend to be less physically active than their heterosexual counterparts and, therefore, are at a higher risk of obesity (LGBTQ Health, n.d.).

Studies show that 35% of transgender, non-binary (i.e., gender does not fit under the label of male or female), and gender non-conforming adults report being inactive compared to 26% of cisgender adults (i.e., those whose gender identity corresponds to the sex assigned at birth) and were 30% more likely to report being in "fair" or "poor" health over the last month (Baker, 2019). Author Kellan Baker stated, "Being transgender in a society that you know doesn't fully accept you is hard. It affects your health in negative ways, and that's why issues such as nondiscrimination protections for transgender people are public health issues" (Reuters, 2019).

An important component of becoming and remaining physically active is determining where a person ranks compared to fitness standards. In order to create a safe exercise regime, a person must have a general idea of how physically healthy they are to begin with. Health and fitness assessments are usually conducted before beginning an exercise intervention to establish a starting point and to determine a person's health and fitness status compared to a known population. However, fitness standards are gendered, which is problematic as not all people identify as male or female. Only providing these two options for standards is limiting. A common argument for using only male and female standards is that the individual should use the standards which align with their sex assigned at birth, but this also presents another problem: medically transitioning, which includes utilizing hormones, has physiological implications. Transitioning is a long process that involves multiple interventions which can affect body composition, muscular strength, and cardiovascular health (Lane, 2022).

Physical fitness is drastically affected by a person's physiology, which is one of the main reasons the transgender community faces so many barriers within the fitness industry. Testosterone, typically produced in high quantities by males and low quantities by females, is the hormone responsible for male secondary sex characteristics like a deep voice and facial hair; however, it also causes a person to have increased muscle mass and bone density among other things (Kelly, 2019). Currently, the average medically accepted normal range for testosterone in men is 9.2–31.8 nmol/L and 0.3–2.4 nmol/L in women. Based on these ranges, the testosterone in an average cisgender woman is roughly 10 times less than in a cisgender man. Testosterone is why fitness standards have been gendered; men have higher testosterone than women, which typically causes men to have higher relative strength and lower body fat percentages (Lane, 2022). As a result of these differences, fitness assessments are either performed the same or slightly modified depending on gender, and the results are also interpreted against different scores based on gender. For example, the 60-second push-up test uses different variations of a push-up to determine a person's fitness level depending on their gender. Women are expected to do push-ups in the bent knee/knee down position, while men are to perform the push-up on their toes. Men and women who perform the same number of push-ups will be placed in different fitness categories. On average, male scores require 3–7 additional repetitions, depending on the age group, to achieve the same fitness category (Bryant et al., 2014).

Due to increases in muscle mass and bone density, testosterone causes differences in the body composition of men and women, with women requiring 7–10% more essential body fat (Liguori et al., 2021). On average, body composition percentiles for women are based on having a higher body fat of roughly 6% more than men of the same age.

With the increase in transgender people in the population, it is important to note that not all men have higher testosterone, and not all women have low testosterone, but instead, it depends on their choices to have hormone replacement therapy (HRT) or not. Prior to medically transitioning, transgender men will be biologically like cisgender women and have low testosterone, while transgender women will be biologically like cisgender men and have high testosterone. When a person begins HRT, they are either adding or removing testosterone from their body, which in turn causes them to have increased or decreased muscle mass and bone density (Lane, 2022). Transgender individuals who choose not to have HRT will not have the same hormone levels as cisgender people of the same gender identity. Since current fitness standards are based on gender, they cannot provide accurate results to transgender students due to the physical differences caused by testosterone. For example, if a transgender man not on HRT were to use male fitness standards, he could score lower for his fitness level because, biologically, he is like a cisgender woman. Using the female standard could provide a more accurate score; however, asking a transgender man to use female standards can be psychologically detrimental and create a negative relationship with fitness.

Even if an individual chooses to have HRT, there are few studies on the length of time medical transitioning takes and at what point they can accurately use gendered fitness standards that align with their identity. In 2016, Deutsch conducted a study on transgender men and HRT, paying particular attention to how they took testosterone and monitored their levels over time. Regardless of how these men were taking testosterone (i.e., injections, gel, or patches), after six months, only 68% had normal male-range testosterone levels, and almost 20% still experienced menses.

Aside from the physical barriers that transgender students face, there are many other fitness areas that they may feel excluded from on their campuses. Fitness programming tends to be very gendered due to male and female locker rooms, specific gender-centered programming, and uneducated trainers and instructors. In addition to barriers

existing for TGNC students, intersectionality plays a role in what barriers exist for what students. TGNC students of color will have different experiences at predominantly white, cisgender institutions, and students in a lower economic class will have different experiences at a private, more expensive institution. Although it is just a starting point, understanding how this population feels their gender identity relates to their experience in fitness will allow higher education institutions to develop interventions to make their university more inclusive for all students.

The current study aimed to identify fitness-related barriers faced by the transgender community at a medium-sized university, and to collect gender-neutral fitness assessment data to standards for the transgender population to reduce those barriers in higher education.

METHODS

Participants and Procedure

Research participants were recruited from students at a medium-sized public university in the southeastern part of the U.S. in the Spring of 2022. Participants were recruited via email, and the study included two different aspects, i.e., an online survey and a fitness assessment. Participants could choose to complete just the survey or both the survey and fitness assessment. The online, anonymous survey consisted of seven questions. The first three questions asked for the participant's gender identity, frequency of exercise, and preferred exercise location. Participants were then asked to gauge what percentage of time they spent performing various types of exercise such as cardiorespiratory exercise, weightlifting, high-intensity interval (HIIT) training, and sport-specific activities. The survey then provided a list of statements about comfort in gym settings, locker rooms, working out in groups or alone, their utilization of group fitness classes and personal trainers, among other statements, and participants indicated to what degree their gender identity affected their experience as stated. Responses were recorded from *strongly agree* to *strongly disagree* relating to the degree their gender identity affected their experience as stated. The last question of the survey was open-ended and provided participants with the opportunity to share their thoughts on how their gender may have impacted their experience in wellness and physical activity classes. Specifically, qualitative responses were obtained from the question, "In your fitness classes, do you feel like your gender impacted your experience in the class? If yes, please briefly elaborate." Upon completion of the survey, respondents were provided with the opportunity to complete a fitness assessment with a personal trainer. Fitness assessments were used to collect pilot data comparing assessment scores to established gendered normative data. Although the assessment data was limited, there is a need for the development of gender-neutral fitness standards.

The assessment was 30 minutes in duration and consisted of measuring body composition, upper and lower body muscular endurance, and aerobic fitness. The BOD POD (2022) utilizes body weight and body volume to predict body composition. Participants sat inside the BOD POD, a chamber of known volume, for a several minutes as body volume was assessed. The equation used to calculate body fat percentage takes into account gender. To remain bias-free and gender neutral, participants' gender identity was not collected. Participants completed two back-to-back BOD POD assessments: one with their gender listed as female and the other listed as male. Muscular endurance was assessed using the push up test and squat test. Participants completed a 60-second push up test followed by a 60-second squat test where, for each assessment, they performed as many repetitions as possible in one minute. Aerobic fitness was assessed using the YMCA submaximal step test, in which participants step up and down (12 in. step) at a 96 beats per

minute pace, for three minutes. Upon completion, heart rate is assessed and used to predict cardiorespiratory endurance (Bryant et al., 2014). All scores were recorded in a document using randomly generated numbers for identification. The study received approval from the Institutional Review Board prior to data collection.

Data Analysis

Descriptive statistics were used to evaluate the results of the survey and the fitness assessments. Feedback from the question, “In your fitness classes, do you feel like your gender impacted your experience in the class? If yes, please briefly elaborate” are included in the results.

RESULTS

Seventy-nine students participated in the survey portion of the study: 68 cisgender females, five cisgender males, two non-binary and four transgender males. Twenty-eight students participated in the fitness assessment, where gender identity and age remained anonymous.

Survey results were separated by cisgender and transgender/non-binary identities (TGNB; Table 1). Due to the small participant pool of this study, survey results were grouped by strongly disagree/disagree, neutral, and strongly agree/agree.

Table 1

Survey Results

	Cisgender <i>n</i>(%)	TGNB <i>n</i>(%)
Participants who are not comfortable working out in all areas of their gym.	27(37%)	3(50%)
Participants who utilize group fitness classes.	15(27%)	0(0%)
Participants who are comfortable working with a personal trainer.	29(38%)	3(50%)
Participants who feel like a minority in fitness settings.	14(19%)	2(33%)
Participants who feel like they do not have a place in most fitness settings.	15(20%)	2(33%)
Participants who feel like gendered fitness standards do not apply to them.	23(31%)	5(84%)
Participants who are not comfortable with the locker rooms and facilities at their gym.	5(7%)	2(33%)
Participants who feel like their gym is not inclusive to everyone.	5(7%)	2(33%)

Note. TGNB= Transgender or non-binary.

On average, there was a 23% difference in the answers of cisgender and TGNB participants. When asked to elaborate on their feelings of how gender impacted their experience in Wellness and Physical Activity classes in the open-ended question, both cisgender men and women reported feeling like their classes were tailored to the opposite gender; males believed females were more targeted in the class and vice versa. TGNB participants said that they felt like they were not getting information accurate to their experience in wellness and physical activity.

The assessments of body composition, muscular endurance, and cardiorespiratory fitness revealed that some participants scores placed them in different percentiles based on the gender they used for comparison. Conversely, results were not different when comparing body composition results if classified as male vs. female.

DISCUSSION

Based on the results of the survey, many TGNB students do not feel as included in their college campus health and fitness environments as cisgender students. With 84% of the TGNB student respondents in this study feeling like gendered fitness standards did not apply to them, an alternative to these standards needs to be offered in classroom settings and fitness facilities. Gendered standards have been developed by assessing hundreds or even thousands of individuals. Ultimately, gender-neutral standards must be developed for the assessments commonly used in the fitness arena, including push-ups, squats, and an assessment of cardiorespiratory fitness, such as the YMCA submaximal step test. This will require extensive assessment of participants from all age groups to create a clear and complete set of gender-neutral standards. The American College of Sports Medicine (Liguori et al., 2021) and American Council on Exercise (Bryant et al., 2014) present male and female standards for health and fitness outcomes. However, no gender-neutral standards exist. Developing these standards is critical to allow students to feel as though they do not have to choose to compare themselves to cisgender men or women. Eighty-four percent of the surveyed transgender people reported that current standards did not apply to them, thus, gender-neutral standards could result in a more inclusive experience.

Although needing further research, the current study's findings on gendered body composition assessments suggested that using either male or female calculations on any given student no matter their gender would yield accurate results. There was an average 1.43% difference between male and female calculations, which is on the lower end of the BOD POD range of error which is $\pm 1-2.7\%$ (BOD POD Body Composition Testing, 2022). This finding suggests that using the calculation that matches the student's gender identity is acceptable, regardless of their choice to undergo HRT, and will produce results with no more error than using a BOD POD in general.

While this study was limited in its time allowance and participants, it provided small-scale data to show the importance of continuing research in this field. The next steps for this research include developing gender-neutral fitness standards, assessing the accuracy of gender-neutral circumference and skin fold assessments, and implementing these gender-neutral practices at universities. Additional limitations included the lack of ability to identify whether experiences analyzed in the survey were purely a result of a person's gender identity or, in part, due to another identity that they may have had, such as race, sexuality, or class.

Facilities at universities need to work to become more inclusive for students, as 40% of students in this study believed that their gyms were not for everyone. Development of gender-neutral fitness standards, creating more inclusive locker rooms and changing spaces, educating staff on creating inclusive environments, and finding ways to welcome people of all identities into all areas of fitness centers is a solid start. Future research will be able to provide

additional guidance on what other barriers exist for TGNB students within the fitness industry and how to break them down. In addition, the development of non-gendered normative data would be especially useful for TGNB students.

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Author's Note

We have no conflicts of interests to disclose.