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Exploring Social Physique Anxiety, Ethnic Identity, and Gender Identity in Exercisers

By

Kelly May Zwicker

Accepted in Partial Completion
of the Requirements for the Degree
Master of Science

ADVISORY COMMITTEE

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GRADUATE SCHOOL

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Master's Thesis

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Exploring Social Physique Anxiety, Ethnic Identity, and Gender Identity in Exercisers

A Thesis
Presented to
The Faculty of
Western Washington University

In Partial Fulfillment
Of the Requirements for the Degree
Master of Science

by
Kelly May Zwicker
May 2021

Abstract

The purpose of this study was to explore the relationships and predictability of ethnic identity, race/ethnicity, and gender identity of social physique anxiety (SPA) in exercisers. Random stratified sampling of two popular exercise chains in the U.S. and snowball sampling resulted in 1,765 regular exerciser participants, including nine different races/ethnicities and eight gender identities. There was a small, negative correlation between SPA and total ethnic identity for the entire sample ($r_s = -.063, p = .008$). For White/European American exercisers, there was a small, negative correlation ($r_s = -.093, p = .001$), and for Black/African American exercisers there was a moderate, negative correlation ($r_s = -.309, p = .026$). There were no other statistically significant correlations between other race/ethnicity groups or mean differences in SPA between racial/ethnic groups. When investigating the predictive value of gender identity and total ethnic identity on SPA, the model was statistically significant [$R^2 = .010, F(3, 1754) = 5.737, p = .001$] and explained 1% of the variance in SPA. There was a unique contribution from total ethnic identity and cisgender women towards SPA, yet both were small. Additional exploratory analyses included testing for differences in ethnic identity between racial/ethnic groups, differences in SPA between genders, and correlations between age and SPA. It appears that there are no large differences in SPA among exercisers when grouped by race/ethnicity or gender, but there may be differences in relationships between SPA and ethnic identity for Black/African American exercisers compared to other racial/ethnic identities.

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Literature Review

Social physique anxiety (SPA) is a type of anxiety that involves a fear of negative evaluation from others, specifically regarding a person's physical appearance (Hart et al., 1989). For example, when an exerciser's body is on display, they may experience increased levels of SPA (Rothberger et al., 2015). Social physique anxiety appears to be an important construct to examine in conjunction with exercise. For instance, exercisers have heightened awareness of their physiques and may be preoccupied with certain aspects of their bodies (e.g., body fat, muscular tone, body proportions; Hart et al., 1989). To date, social physique anxiety research has been conducted primarily on White women. Additional research determining the triggers and prevalence of SPA in more diverse groups will help researchers gain further understanding of the construct, and potentially develop more targeted interventions to reduce its effects. This literature review will include a review of constructs that are similar or related to SPA research, such as body image and body dissatisfaction, the relationship between exercise and SPA, theoretical explanations for SPA, and current limitations in SPA research. Additionally, this review will include the suggestion of ethnic identity as a meaningful variable to examine in conjunction with SPA, particularly in diverse groups of exercisers with varying gender identities.

Body Image and Dissatisfaction

Body image is conceptualized as the perception of one's physical attributes and appearance (Brudzynski & Ebben, 2010) and is also defined as an individual's perceptions of their weight, size, and shape (Forrest & Stuhldreher, 2007). Researchers have studied body image extensively in the social and behavioral sciences, as well as several medical and allied health fields (Cash, 2004). Researchers state that there are four aspects of body image: perceptual, affective, cognitive, and behavioral (National Eating Disorders Collaboration

[NEDC], 2018). Perceptual body image is defined as how people see their bodies, and this perception can be realistic or unrealistic (Skrzypek et al., 2001). For example, people may have the perception that their bodies are overweight when that they are actually underweight. Affective body image is defined as the level of satisfaction or dissatisfaction people feel about their weight or shape (NEDC, 2018). Cognitive body image is defined as how people think about their body weight or shape (NEDC, 2018). For example, a person may think they will feel better about their body if they become thinner or more muscular. Behavioral body image is defined as the behaviors a person engages in as a result of their body image (NEDC, 2018). For example, if a person does not feel satisfied with their appearance, they may engage in excessive exercise or disordered eating. It is important to address all four aspects of body image in order to help people think and feel more accepting towards their bodies. Unfortunately, negative body image is very common, but it may change over the course of a lifespan.

The development of one's body image appears to involve the maturity of one's sense of self (Miller, 1976). Additionally, a person's body image influences their interpersonal relationships. According to Miller's (1976) relational cultural theory (RCT), one's lack of connection with the self or a lack of connection with others may result in psychological problems. A person's connection with the self is also achieved with the acceptance of their body through their lifespan (Sanftner et al., 2009). Researchers have examined body image across the lifespan by conducting longitudinal studies, to explore how positive or negative body image may change with age (Cash, 2004). The common developmental pattern for most people includes a substantial increase in negative body image during early adolescence, followed by stabilized body image during emerging adulthood (Gattario & Frisén, 2019). Overall, body image is a very

broad term to describe the self, whereas other related constructs, such as body dissatisfaction, are more specific and can provide closer examination to the negative aspects of body image.

Although body image and body dissatisfaction are related constructs, body dissatisfaction is a term that denotes a maladaptive experience, whereas the term *body image* can be positive or negative (Gattario & Frisé, 2019). Psychologists conceptualize body dissatisfaction as the perceived discrepancy between one's actual and one's desired body image (Melching et al., 2016). Body dissatisfaction can also be described as a person's negative, subjective evaluation of their physique (Grogan, 2008). Researchers have proposed various theoretical frameworks to describe body dissatisfaction and its potential underlying factors. For example, self-objectification, or classifying one's body as an object (e.g., excessive mirror gazing), is often associated conceptually with body dissatisfaction (Melbye et al., 2008). Therefore, theoretical explanations for self-objectification can be relevant to body dissatisfaction research. According to Fredrickson and Roberts' (1997) objectification theory, when women and girls in particular experience a sexually objectifying environment, the experience can result in habitual body checking, which can include pinching one's abdomen to assess body fat, frequently observing one's body parts in a mirror, and consistently monitoring one's weight on the scale. Habitual body checking may increase overall feelings of shame and anxiety (Fredrickson & Roberts, 1997). Individuals with body dissatisfaction may focus primarily on the perspectives of others in relation to their bodies and internalize unhealthy feelings of shame and anxiety (Fredrickson & Roberts, 1997).

Another body dissatisfaction model is Vartanian et al.'s (2018) identity disruption model. The identity disruption model of body dissatisfaction was developed to explain the role of debilitating early life experiences in combination with body dissatisfaction (Vartanian et al.,

2018). According to the model, negative early life challenges (e.g., abuse, neglect) disrupt the process of identity development. Thus, an individual could be more likely to internalize societal standards of body ideals (Vartanian & Hayward, 2019). Additionally, disrupted identity can act as a mediator between negative early life experience and body dissatisfaction (Vartanian & Hayward, 2019). According to Campbell (1990), identity disruption is positively associated with the internalization of societal standards of attractiveness. Campbell (1990) argued that a person's likeliness to internalize societal standards depends on their establishment of a sense of self. Further, individuals who do not possess a clear sense of self tend to utilize external sources for self-definition, thus making them more vulnerable to external influence. Societal standards of attractiveness then act as external sources that individuals may use to define themselves (Campbell, 1990). Although this framework has been supported by body dissatisfaction researchers, the identity disruption model may over-simplify the internalization of societally projected body ideals. Overall, it can be suggested that body dissatisfaction may lead to maladaptive behaviors and emotions. Body dissatisfaction in men and women is associated with several adverse health outcomes, such as depression, low self-esteem, eating disorder tendencies, and both physical and mental health impairment (Purton et al., 2019).

From body dissatisfaction research conducted thus far, it appears that women and men have different triggers for being dissatisfied with their bodies. Women tend to internalize thinness ideals in combination with a fear of being overweight, and men are not as concerned with becoming overweight; rather, men more often focus on the muscularity ideal as opposed to the thin ideal (Ferguson, 2013). Additionally, researchers have suggested that societal pressure and ideals have affected women on a greater scale than men, and that this societal pressure may begin in as early as adolescence (Lawler & Nixon, 2011). The approximate prevalence of body

dissatisfaction in the United States for women is between 13.4% and 31.8%, whereas for men it is approximately between 9.0% and 28.4% (Fallon et al., 2014). Given these ranges, it appears that, on average, women have higher rates of body dissatisfaction. However, there is a possibility that men are underreporting body dissatisfaction in research studies.

Body dissatisfaction is positively associated with adverse health outcomes, for both men and women. One adverse health outcome positively associated with body dissatisfaction in men more often than women is muscle dysmorphia, a disorder classified by both negative body image and an obsessive desire to obtain and maintain a muscular physique (Murray et al., 2010). Muscle dysmorphia involves the perception that one's body is not muscular enough, thus creating a certain level of image distortion (Murray et al., 2010). Adverse health outcomes positively associated with body dissatisfaction in men include depression and suicidal ideation (Griffiths et al., 2016). Eating disorder pathology has also been positively correlated with male body dissatisfaction (Smith et al., 2011). Lastly, body dissatisfaction in men has been positively correlated with the use of anabolic steroids (Kanayama et al., 2006). For women, adverse health outcomes positively associated with body dissatisfaction include eating disorder pathology, depression, and preoccupation with weight (Sharpe et al., 2018). Additionally, excessive dieting is commonly reported in women with high body dissatisfaction. Overall, it is apparent that both men and women experience body dissatisfaction (Sanftner et al., 2009).

Weight perception is a common factor in body dissatisfaction prevalence, particularly for women (Siervo et al., 2014). For instance, Siervo et al. (2014) examined 44 women (18 to 35 years old) who were classified as obese or non-obese using their body mass index (BMI). To measure body dissatisfaction, researchers distributed the Body Dissatisfaction subscale of the Eating Disorder Inventory-2 (Garner & Olmsted, 1986). Participants who were classified as

obese reported higher body dissatisfaction rates in comparison to non-obese participants. Seventy four percent of the obese group reported wanting to lose more than 20% of their body weight, in comparison to only 23% of the non-obese group (Siervo et al., 2014). Further, body dissatisfaction appears to be positively associated with unrealistic weight loss and ideals. All participants were women attending a dietary clinic; therefore, the sample was not generalizable to a larger population (Siervo et al., 2014). Overall, women consistently report higher rates of body dissatisfaction in comparison to men, however, it seems that body dissatisfaction researchers are now primarily focused on women, thus potentially limiting data collection and accurate prevalence data for men. Additional gender groups need to be included as well, given that body dissatisfaction appears to be prevalent in in transgender/non-binary individuals (Bandini et al., 2013).

Body dissatisfaction is a central component of psychological distress experienced by transgender individuals (Bandini et al., 2013). For the transgender population, this psychological distress is related to both unwanted assigned sex and body-related stereotypes and expectations (Jones et al., 2016). To investigate body dissatisfaction in transgender individuals, McGuire et al. (2016) examined 90 participants who identified as transgender. Body dissatisfaction was assessed using a semi-structured interview, that also included questions about participants' body satisfaction. Seventy percent of the sample described feelings of body dissatisfaction during the interview. Researchers found that the main themes of body dissatisfaction derived from participants' responses included body size and gender appearance (McGuire et al., 2016). Overall, researchers have found that conflicted gender identity has been positively associated with body dissatisfaction in transgender populations (e.g., Ålgars et al., 2012).

Researchers examining body dissatisfaction also study body image distortion, which is defined as an unrealistic view of how people view their bodies (Forrest & Stuhldreher, 2007). Body image distortion may be used interchangeably with body dissatisfaction, given both constructs are conceptualized as negative body image. Forrest and Stuhldreher (2007) conducted a study on college students at two points in time, with a five-year gap in between time points (1,440 students were included in the first survey and 1,072 were included in the second survey). Nine body silhouette figures were distributed to each participant. Silhouette one was the leanest and silhouette nine was the largest. Participants were then asked which figures most accurately represented their actual body, their ideal body, their most attractive body to the opposite sex, and the body they found most attractive in the opposite sex. At both time points, comparing both men and women in the study, nearly twice as many women were dissatisfied with their bodies. The authors found that approximately 90% of students with self-reported body dissatisfaction thought their body was unattractive to the opposite sex and wished to be thinner. Conversely, less than 20% of participants who were satisfied with their bodies exhibited negative perceptions described above (i.e., being unattractive to the opposite sex, desire to be thinner). Thus, body dissatisfaction and body image distortion are closely related, however, a limitation of the study was the use of a predominantly White sample. Overall, body dissatisfaction can be psychologically detrimental.

For both men and women, body dissatisfaction can have adverse health effects; these effects also depend on the extent to which an individual internalizes unrealistic appearance standards (Fredrickson & Roberts, 1997). It is apparent that body dissatisfaction prevalence involves a mix of biological, psychological, and sociocultural variables, thus making body dissatisfaction a multi-faceted construct (Penkal & Kurdek, 2007). To better understand body

dissatisfaction, it is helpful to reference related terms that are similar in literature, such as social physique anxiety.

Social physique anxiety. Social physique anxiety (SPA) is a term to describe the distress a person feels due to perceived evaluation of the physical self (Hart et al., 1989). People with high SPA may avoid situations where they will be physically evaluated due to their anxiety (McLester et al., 2018). Additionally, a person experiencing high SPA will likely show increased distress during fitness tests and in fitness environments (McLester et al., 2018), thus making exercisers a common group of interest in SPA research. The areas of concern for individuals with SPA can include muscle tone and body fat percentage, as well as a general assessment of body proportions (Portman et al., 2018).

Festinger's (1954) social comparison theory is useful to explain SPA. According to social comparison theory, when there is an absence of objective standards, people tend to compare themselves to others, in order to determine how they fit in (Festinger, 1954). Festinger (1954) suggested that there are two categories of social comparisons: upward comparisons and downward comparisons. An upward comparison occurs when individuals compare themselves to others who they believe are *better* off than themselves; upward comparisons often lead to negative results, such as reduced self-esteem. A downward comparison occurs when individuals compare themselves to others who they believe are *worse* off than themselves; downward comparisons often lead to positive results, such as increased self-esteem (Festinger, 1954). Overall, Festinger (1954) suggested that individuals are motivated to create comparisons so they can decipher where they stand in a given domain. Moreover, individuals with high SPA may be consumed with social evaluations and comparisons, in regard to their physique. Other researchers have expanded on social comparison theory to suggest that people can be motivated

to create comparisons for the sake of self-improvement or self-enhancement (Helgeson & Mickelson, 1995; Wood, 1989). Wood (1989) argued that people who seek self-improvement tend to make upward comparisons, and people who seek self-enhancement tend to make downward comparisons (Wood, 1989). Individuals who are motivated by self-improvement or self-enhancement can experience negative or positive consequences; an example of a negative consequence could be SPA.

Another theory that has been useful to understand SPA is self-presentation theory by Schlenker and Leary (1982). Schlenker and Leary (1982) suggested that individuals often direct their attention to specific aspects of the self they are proud of (i.e., accomplishments), while aiming to avoid or deemphasize other aspects that produce stress or anxiety (i.e., physique or body image). Self-presentation is a predominantly goal-oriented action; individuals who are presenting themselves are often aware that they are doing so (Schlenker & Leary, 1982). Further, individuals aim to fulfill a desired impression that they have formed based on their perceptions of others around them. Schlenker and Leary (1982) argued that once individuals have awareness of the perceptions of those around them, anxiety can result, especially in social settings. Self-presentation is also positively associated with goals such as weight management, enhancement of physical appearance, and the improvement of muscularity (Focht & Hausenblas, 2004). Given all of these motivations relate to one's physique, SPA and self-presentational concerns are related conceptually. These motivations or drives can be different across genders.

Overall, women report higher levels of SPA in comparison to men (e.g., Chu et al., 2008; Frederick & Morrison, 1996; McLester et al., 2018; Miller & Fry, 2018; Portman et al., 2018; Rothberger et al., 2015). To investigate the differences in SPA between men and women, as well the drive for masculinity in both genders, McCreary and Saucier (2009) examined 383 male and

female college students ($M_{\text{age}} = 19$ years old). The Short Form Social Physique Anxiety Scale (SPAS; Martin et al., 1997) was distributed to measure participants' degree of SPA in public. The Drive for Masculinity Scale (DMS; McCreary & Sasse, 2000) was distributed to measure the degree of desire from participants for a more muscular body, and the extent to which participants would act upon this desire. The Body Comparison Scale (Fisher et al., 2002) was used to measure the extent to which participants compared specific body parts to members of the same sex. Men reported significantly higher scores on the DMS, in comparison to women. Women, however, scored significantly higher than men on the SPAS and two subscales of the Body Comparison Scale (General Body Comparison and Weight-Related Comparison). McCreary and Saucier (2009) suggested that individuals who make more frequent body comparisons tend to have higher SPA, specifically weight and muscle-related forms of body comparisons. A limitation of the study was that race/ethnicity data was not collected. McLester et al. (2018) found the same difference in SPA between genders in a sample of 212 college students who identified as women and men. Participants' scores on the SPAS ranged from 12-60. Men reported lower mean scores on the SPAS in comparison to women. However, it is important to note that SPA researchers have not examined gender inclusive samples; specifically, researchers have not included the transgender population in a representative sample, nor have transgender populations been included in data analysis for SPA (White & Warren, 2014). To better examine SPA across gender groups, further gender inclusivity and representation is needed to properly assess SPA as a construct, and its prevalence. Additionally, social physique anxiety needs to be further explored in varying contexts with more diverse samples, as most researchers sampled college students. When examining similar constructs to SPA, such as body

dissatisfaction, the diversifying of study samples is also important when investigating exercise and physical activity settings.

Body Dissatisfaction and Exercise

Given that body dissatisfaction is positively associated with adverse health outcomes, researchers have thoroughly examined body dissatisfaction in relation to health-related behaviors, such as exercise. Exercise is defined as a subcategory of physical activity that is planned, repetitive, and structured, and there is a clear objective for the improvement or maintenance of physical fitness, in comparison to general physical activity which is defined as any physical movement that generates energy expenditure, with the function of skeletal muscles (Caspersen et al., 1985). Body dissatisfaction appears to be both a barrier and a motivator for exercise (Brudzynski & Ebben, 2010). For individuals who already exercise regularly or semi-regularly, body dissatisfaction appears to be a form of external motivation for exercise, particularly to improve appearance (More et al., 2019). Several researchers have also found that individuals who perceive themselves as overweight report using exercise to lose weight (e.g., Brudzynski & Ebben, 2010; Melching et al., 2016; Koyuncu et al., 2010). In other words, individuals with reported body dissatisfaction may associate exercise behavior with weight loss and the achievement of body satisfaction. Researchers suggest that for long-term maintenance of exercise, the external motivation of improving one's appearance (the predominant motivation resulting from body dissatisfaction) is not effective for long-term adherence (Teixeira et al., 2012). Rather, exercising for intrinsic reasons (Sibley et al., 2013) or health-related reasons (Teixeira et al., 2012) are positively associated with long-term exercise. Conversely, body dissatisfaction has been positively associated with exercise avoidance, thus contributing to a reduction of both moderate and vigorous exercise (More et al., 2019). For instance, More et al.

(2019) examined 334 undergraduate students (18-41 years old) who completed measures of body dissatisfaction and exercise avoidance. Individuals with high body dissatisfaction reported high embarrassment and body dissatisfaction acted as a positive predictor for exercise avoidance (More et al., 2019). In other words, individuals with SPA may not engage in exercise due to their body dissatisfaction. Similarly, Vartanian and Novak (2011) found that weight stigma, defined as the discrimination based on one's weight or size, was positively correlated with avoidance of exercise, while controlling for body dissatisfaction in a sample of 111 exercisers (84 women and 27 men). Overall, it appears that body dissatisfaction can be both a motivator and barrier for exercise.

There are apparent differences in male and female exercisers in regard to body dissatisfaction levels. It is important to acknowledge the direction of body dissatisfaction for men and women; generally, men report exercising to become larger and more muscular, whereas women report exercising to lose weight and fat (Melching et al., 2016). These differences in exercise reasoning have been apparent in several studies. For example, Melching et al. (2016) examined body dissatisfaction in 415 college students (169 males and 246 females; ethnicity was not reported). The participants were split and compared by four groups: female exercisers, female non-exercisers, male exercisers, and male non-exercisers. Using drawn silhouettes, participants selected the silhouette that most accurately represented their bodies, which silhouette they most wanted to achieve, which silhouette most accurately represented other females' perceptions of their bodies, and which silhouette most accurately represented other males' perceptions of their bodies (Melching et al., 2016). To gauge exercise status via the American College of Sports Medicine guidelines, participants reported their exercise frequency, duration, and intensity (Melching et al., 2016). Men had lower scores of body dissatisfaction in

comparison to women; men also reported wanting to be larger and more muscular than their current physiques, whereas women reported wanting to be smaller than their current physiques. Women who did not exercise had the highest scores of body dissatisfaction of all participants recruited, a finding that is consistent with several studies (e.g., Koyuncu et al., 2010; Tiggemann & Williamson, 2000). Similarly, Tiggemann and Williamson (2000) found that, in a sample of 252 exercisers (143 women and 109 men), women exercised significantly more for weight control and weight loss reasons, than men. Additionally, weight control and weight loss exercise reasons were positively associated with body dissatisfaction in women (Tiggemann & Williamson, 2000). Although men and women have reported consistent differences in body dissatisfaction, race/ethnicity is often not included as an independent variable when examining individual differences in body dissatisfaction variables (Melching et al., 2016; Tiggemann & Williamson, 2000). The relationship between exercise and body dissatisfaction has provided needed insight as to how individuals feel about their bodies in regard to exercise. Moving forward, investigating similar constructs to body dissatisfaction could be useful for exercise psychology, such as social physique anxiety.

Social physique anxiety and exercise. The relationship between SPA and exercise is complex; SPA has been positively associated with reduced exercise motivation (Eklund & Crawford, 1994; McAuley et al., 1995), as well as excessive exercise (e.g., Frederick & Morrison, 1996). Thus, it is unknown if SPA is more of a barrier or a motivator for exercise. SPA has been primarily examined in the exercise setting due to its component of social evaluation (e.g., Berry & Howe, 2004; Krane et al., 2001; McLester et al., 2018; Portman et al., 2018; Rothberger et al., 2015). An exerciser's preoccupation with their physique may be amplified in specific exercise settings due to high volumes of people exercising in close

proximity, and when they are aiming to achieve certain body ideals (Chu et al., 2008); thus, exercisers may become concerned about a negative assessment of their bodies when exercising near others. In addition, the feeling of social evaluation of exercisers' bodies may lead to feelings of inferiority, therefore reducing their self-esteem in an exercise environment (Hart et al., 1989). Examining SPA in fitness environments has highlighted the fact that SPA involves an interpersonal component (Sabiston et al., 2014). In other words, researchers studying SPA focus on an exerciser's perception of physique evaluation, as opposed to solely their own evaluation (Sabiston et al., 2014). Additionally, SPA has a clear symptom of anxiety, differentiating SPA from other constructs such as body image and body dissatisfaction, which may or may not include anxious feelings. However, it is important to note that exercisers can include individuals who exercise at home or outdoors away from others, and SPA has not been examined in exercisers from different environments. It could be that the relationship between SPA and exercise depends on the setting in which one exercises.

Exercisers with SPA, in general, appear to be preoccupied with weight, body fat, and appearance (McLester et al., 2018; Strong et al., 2006). To investigate preoccupation with weight and body fat, researchers have utilized BMI in SPA research, particularly in college student populations. Although it is a flawed measurement for health (Burkhauser & Cawley, 2008), BMI has been used in SPA research to assess body composition. For instance, McLester et al. (2018) examined BMI and body fat composition, appearance satisfaction, and SPA in 212 college student exercisers (19 women and 93 men, 18 to 28 years old). The sample was 74% White exercisers (no other racial/ethnic groups were mentioned). The researchers found that participants with a BMI equal to or greater than 25.0 had lower levels of appearance satisfaction. Additionally, there was a positive correlation between SPA and body fat percentage, as well as a

positive correlation between SPA and BMI. Thus, the authors suggested that SPA symptoms may include preoccupation with one's weight, including an individual's perception of their BMI and body fat percentage (McLester et al., 2018). Strong et al. (2006) investigated similar factors in another sample of college students. The authors studied 474 undergraduate students (154 men and 320 women). Participants' ethnic backgrounds were not reported. Participants completed the Social Physique Anxiety Scale (SPAS), which measured the degree of social physique anxiety experienced by participants, and the Exercise Motivation Inventory-2 (EMI-2; Markland & Ingeldew, 1997), which contained subscales that measured self-presentational concerns. Self-presentational concerns are defined as an individual's attempts to monitor how others perceive them, as well as achieve a favorable impression (Leary & Kowalski, 1990). Overall, self-presentational exercise motives were positively associated with SPA for both men and women. For women, the three factors that were weakly to moderately associated with SPA included weight management ($r = .42$), social recognition ($r = .20$), and appearance ($r = .40$). For men, the two factors weakly associated with SPA included weight management ($r = .24$), and appearance ($r = .27$). For both men and women, factors positively correlated with SPA included weight management and appearance (Strong et al., 2006). Thus, when participants exercised more for appearance or weight management reasons, their physique anxiety was heightened (regardless of one's gender). Overall, it appears that preoccupation with weight is positively associated with SPA for both men and women (Strong et al., 2006). Limitations of both studies (McLester et al., 2018; Strong et al., 2006) include the absence of ethnicity as an additional variable to examine with SPA. In addition to thoughts and feelings regarding one's body fat and weight, the type of fitness environment was not assessed, but appears to contribute to SPA in exercisers.

Comparing natural and laboratory fitness environments has been helpful for studying SPA prevalence in exercisers. Natural fitness environments are spaces in which people naturally congregate to exercise including recreation centers and health clubs; whereas laboratory fitness environments are research settings that are highly controlled and commonly private (Focht & Hausenblaus, 2004). Laboratory fitness environments lack the stimuli natural fitness environments possess. In other words, laboratory fitness environments may not contain the same triggers for SPA as natural fitness environments (Focht & Hausenblaus, 2004). Focht and Hausenblaus (2004) examined SPA in both a natural (i.e., university fitness facility) and laboratory fitness environment, in 30 female college students. Students in each environment completed a 20-minute session on a stationary cycle bike. Inactive participants with high scores of SPA reported increased state anxiety when exercising in a natural exercise setting. Perceived evaluative threat, or how threatening participants found their exercise environments, was also heightened in the natural setting (Focht & Hausenblaus, 2004). Specific triggers responsible for increased state anxiety in participants, as well as psychological distress, included the presence of mirrors as well as the presence of other exercisers. The privacy provided in the laboratory environment lowered feelings of perceived evaluative threat, given it did not contain a full-length mirror or any other exercisers. Another discrepancy between the two environments was the lack of social interaction. The experimenter in the laboratory environment remained out of view, further reducing the likelihood of perceived evaluative threat (Focht & Hausenblaus, 2004). Overall, stimuli involved in specific exercise settings are potentially triggering to individuals at risk for SPA. Studying exercisers in additional settings, such as outdoors or at home could give a more accurate picture of SPA prevalence.

Exercise attire is also related to SPA. According to Duval and Wicklund's (1972) objective self-awareness theory, individuals with SPA may feel heightened anxiety with the presence of certain stimuli. Any stimulus that draws attention to the self, such as the presence of another exerciser wearing relatively revealing clothing, can lead to an increased sense of self-awareness (Duval & Wicklund, 1972). Exposure to other exercisers in relatively revealing clothing (e.g., form-fitting attire or spandex) has the potential of increasing symptoms of SPA (Sinden et al., 2003). To test objective self-awareness theory, Sinden et al. (2003) conducted a study on 81 women (53 to 84 years old). All participants reported some form of regular physical activity. Social physique anxiety was measured using the SPAS. Researchers also measured self-presentational efficacy, or one's confidence in one's abilities as a competent exerciser. Two videos were shown to participants of adults, ages 60 years old and over. In the non-revealing condition, all individuals on screen wore full-length t-shirts and regular trousers. In the revealing condition, the same individuals on screen wore sleeveless shirts and shorts. Less active participants had more negative feelings (e.g., lowered confidence) after watching the video of the revealing exercise group, in comparison to more active participants (Sinden et al., 2003). Further, there was a negative correlation between SPA and self-presentational efficacy. Women with average or high levels of SPA experienced lowered self-presentational efficacy after viewing the revealing exercise group video. Overall, the type of attire worn by exercisers can affect other exercisers' thoughts and feelings about their bodies (Sinden et al., 2003). In addition to others' clothing, one's own clothing appears to be related to SPA. In Melbye et al.'s (2008) study on 291 female exercisers, females with high self-objectification were more likely to wear concealing clothing than revealing clothing, in comparison to females with low self-objectification (Melbye et al., 2008). Researchers have suggested that individuals with SPA may experience low self-

confidence in regard to exercising, which can lead to decreased exercise enjoyment (Sinden et al., 2003). Overall, it appears that clothing attire of other exercisers as well as one's own attire have an effect on the psychological experience of the exerciser.

Researchers suggest that exposure to certain exercise related television advertisements may also have a positive association with SPA. For example, Berry and Howe (2004) examined the effects of health promotion advertising on participants' SPA. The study included 103 college students (73 women and 30 men), with a mean age of 19.9 years old who took the SPAS and the Self-Presentation in an Exercise Setting Questionnaire. Participants were categorized as exercisers or non-exercisers, depending on whether they exercised for more than 30 minutes, at least three times a week. Three advertisements were used; one video on physical activity for health promotion, one video on physical activity for appearance, and one video that made no references to physical activity. Following exposure to the health promotion and physical activity videos, exercisers reported decreased SPA, whereas non-exercisers reported no change in SPA. Thus, exercisers who were already active were the participants positively influenced by the health promotion and physical activity videos. A limitation of the study was that ethnicity data was not collected. Overall, it appears that exposure to either media or idealized bodies can instigate negative body image, or even influence a person to objectify their own body (Berry & Howe, 2004).

Similar to how body dissatisfaction is related to self-objectification (Melbye et al., 2008), SPA appears to be related to self-objectification as well. Melbye et al. (2008) assessed the relationship between self-objectification and exercise behaviors, while also monitoring the presence of SPA. The authors recruited 291 women (18 to 76 years old). Participants completed the SPAS, and one exercise behavior survey. A moderate, positive association was found

between self-objectification scores and SPA scores, indicating that there was a positive correlation between self-objectification and social physique anxiety (Melbye et al., 2008). Not including additional gender groups other than women was a limitation of the study. Overall, it appears that heightened feelings of self-objectification can lead to potential SPA symptoms, or vice versa. Melbye et al. (2008) highlighted the likely positive correlation between self-objectification and SPA in the exercise domain.

It is unknown if SPA and exercise quantity have a positive or negative relationship. However, non-exercisers have reported higher SPA in comparison to exercisers (Berry & Howe, 2004). From the limited research thus far, researchers have suggested that exercise could be an intervention strategy for SPA. To test this theory, McAuley et al. (2002) examined 174 men and women ($M_{age} = 65.5$ years old). Participants were recruited to either an aerobic exercise group, or a stretching and toning group for six months. Participants needed to be between 60 and 75 years old and be classified as sedentary in order to participate in the study. Researchers distributed the revised Social Physique Anxiety Scale (Martin et al., 1997) to measure the degree of social physique anxiety. The authors found that increased fitness levels after the six-month exercise program reduced SPA levels. Researchers found that decreases in SPA were associated with overall increase in fitness as well as self-efficacy. A limitation of the study was the predominantly White sample and narrow age range. The authors suggested that further replication of the study needs to be conducted on a more diverse sample to more carefully examine the relationship between SPA and exercise.

Overall, the literature supports the theory that exercisers with SPA may have heightened anxiety when faced with certain stimuli, such as the presence of other exercisers, and the regularity of exercise may help alleviate symptoms of SPA. However, researchers should

examine the relationship between SPA and exercise in more diverse populations. Examination of additional gender identities and age groups beyond young adulthood is also needed to further investigate predictors of SPA. Additionally, researchers need to examine additional race/ethnicity groups, given the consistent lack of racial/ethnic diversity in study samples, and the fact that several researchers did not compare differences among racial/ethnic groups (e.g., Chu et al., 2008; McLester et al., 2018; Portman et al., 2018). This continuation of research may provide knowledge that is needed to eventually target and develop appropriate exercise interventions for groups at higher risk for SPA; further, these tailored interventions could address the differing physique concerns respective to exercisers' racial/ethnic group or gender identity group. Awareness of these between-group differences could aid the development of inclusive exercise environments (e.g., health clubs, fitness facilities) as well as provide education on barriers to exercise specific to a particular racial/ethnic group or gender identity group.

Body Dissatisfaction, Race/Ethnicity, and Ethnic Identity

Ethnicity can be defined as a person's sense of belonging or attachment to their ethnic group (Hutchinson & Smith, 1996). Ethnicity is also conceptualized as subgroups within society that share the same culture, ancestry, or traditions (Hutchinson & Smith, 1996). Race, however, is used to describe perceived biological differences between groups. Efforts to distinguish race and ethnicity in research involve the consideration of several variables such as racism, discrimination, social class, and socioeconomic status (Race, Ethnicity, and Genetics Working Group, 2005). Additionally, someone may identify with a particular race as well as ethnicity; for example, a person may state that their race is Black, and state that their ethnicity is Italian. Researchers have begun investigating additional components of race/ethnicity to better understand how body dissatisfaction may differ between racial/ethnic groups, especially as

populations grow increasingly more diverse (Franko et al., 2007). Race/ethnicity may be useful for determining potential differences in body dissatisfaction *across* racial/ethnic groups, however, using a more specific construct could help identify differences *within* racial/ethnic groups. In other words, individuals within a similar racial/ethnic group may experience or view their race/ethnicity differently. A more individualized construct used in race/ethnicity research is ethnic identity.

Ethnic identity refers to the strength of identification people feel with their ethnic group (Baugh et al., 2010). Additionally, ethnic identity is defined as how people interpret their ethnicity (Phinney, 1996). Ethnic identity is one of the many dimensions of the self, comprised of intergroup relations and linguistic behavior (Baugh et al., 2010). Further, ethnic identity is more specific to a person's ethnic background, values, and traditions, while also representing their feelings and thoughts regarding their ethnic group (Stojek et al., 2010). Given that it can change over time and has high variance among individuals, ethnic identity as a construct can be described on a continuum of low to high (Negy et al., 2003). There is some evidence suggesting that one reaches higher levels of ethnic identity with the aging process (Negy et al., 2003). The attitudes and behaviors associated with ethnic identity impact how individuals navigate their lives both socially and societally (Phinney, 1996). For example, a native Hawaiian adolescent with a strong ethnic identity may exhibit more confidence and pride their ethnic background, amongst predominantly White peers. In contrast, if the described adolescent had low ethnic identity, they may be embarrassed that they are not in the majority and stay silent about their ethnic heritage.

Ethnic identity models have focused on the proposed development and formation of ethnic identity, particularly on the identity development of racial minorities (Negy et al., 2003).

There have been three theories relevant to the development of ethnic identity. The first is Erikson's (1968) theory of identity. According to Erikson (1968), the development of one's sense of self is in response to social interaction. These social interactions change frequently, therefore Erikson (1968) proposed that the sense of self then continues to evolve. However, Erikson's (1968) theory has been questioned for not properly accounting for groups who do not identify as White. Identity status researchers have therefore aimed to increase the inclusion of racial/ethnic groups who do not identify as White (Sneed et al., 2006). Using Erikson's (1968) theory of identity may not adequately explain the experiences of ethnically and socioeconomically diverse populations, therefore its foundation for ethnic identity research is limited.

An expansion on Erikson's (1968) work on identity development can be found in the ethnic identity theory (Phinney, 1989). Phinney's (1989) ethnic identity theory describes the achievement of identity during adolescence, similar to Erikson's (1968) theory, with the addition of ethnicity. Phinney (1989) organized ethnic identity theory into three stages to explain ethnic identity formation. Stage one is referred to as unexamined ethnic identity, where people have not explored nor internalized their ethnicity. For example, people may show a lack of interest in their ethnic identity and not embrace their cultural traditions. Stage two is ethnic identity search, where a particular event may cause a person to enter the period of ethnic exploration. For instance, a person may feel stereotyped based on their ethnic background, thus motivating them to re-examine their ethnic identity. Stage three is ethnic identity achievement, where people have internalized and accepted their ethnicity (Phinney, 1989). For example, people may realize that their cultural traditions are different than their peers, and they have accepted these differences. Inclusivity of multiple racial/ethnic groups in research is essential when examining ethnic

identity, in order for results to be generalizable to a wider, diverse population. The limitation of Phinney's (1989) ethnic identity theory is that the experiences of individuals of multi-racial/ethnic backgrounds are not explained.

Tajfel's (1979) social identity theory is not exclusive to the development of ethnic identity, however, it may help explain its development from a social perspective. According to Tajfel (1979), an individual's sense of identity is heavily influenced by the groups he or she associates with. In other words, a person's sense of belonging is strengthened by group membership (e.g., family, a social class, a sports team) and these groups are formed by social categorization (i.e., putting people into social groups). Tajfel and Turner (1979) developed stages to add to social identity theory to explain three proposed mental processes involved in the development of social identity via intergroup behavior. The first stage is categorization; categorizing people then produces social norms relative to that group. An example of a social category would be a Native American. The second stage is social identification, where people adopt the identity of their respective group. For example, if a person identifies as a Native American, they will likely behave within the norms of the Native American tribe they belong to. The third and final stage is social comparison; once an individual adopts the identity connected to a particular group, that individual then tends to compare that group with other groups. For example, a member of a particular Native American tribe would prefer to follow the norms, customs, and traditions of that tribe in comparison to other tribes (Tajfel & Turner, 1979). Although the relationships between body dissatisfaction and ethnicity have been examined by researchers, studies on the more specific, and perhaps accurate, construct of ethnic identity are limited and there are no known studies of ethnic identity and exercise or SPA.

Researchers have found differences in ethnic identity strength among different racial/ethnic groups. For example, in a sample comprised of 38% African American women, 27% Latino/Latina women, 22% White women, 6% Asian American women, 2% Native American women, and 8% other race/ethnicity participants, African American and Latino/Latina/Hispanic American participants reported higher ethnic identity compared to White participants (Rhea & Thatcher, 2013). Similarly, although with the addition of Asian American participants, Rakhkovskaya and Warren (2014) examined 849 female college students (47% White, 11% African American, 22.5% Asian American, 19.3% Latina/Hispanic) and found that White women reported significantly lower ethnic identity compared to African American women, Asian American women, and Latina/Hispanic women. However, researchers have noted that White participants are the racial majority in the United States, and they may not consider ethnicity to be a core component of their identity (Rodriguez et al., 2010), which would then likely impact White participants' ethnic identity scores in body dissatisfaction and ethnic identity research. Moreover, examining additional racial/ethnic groups in body dissatisfaction research, while accounting for ethnic identity, could provide needed insight regarding the potential variance in body dissatisfaction levels.

Body dissatisfaction and ethnicity. Individual body dissatisfaction will likely vary across racial/ethnic groups due to contrasting cultural and social contexts, therefore examining the relationship between body dissatisfaction and ethnicity is important (Crago & Shisslak, 2003). For women, there have been mixed results when examining body dissatisfaction and ethnicity. African American women overall have reported lower body dissatisfaction in comparison to White women (e.g., Grabe & Hyde, 2006; Wildes et al., 2001). Although there appears to be differences in body dissatisfaction when comparing White women and African

American women, there are limited body dissatisfaction studies that include White women, African American women, and additional racial/ethnic groups. Of the data that has been conducted on body dissatisfaction across several racial/ethnic groups, results from studies including Hispanic and Asian women, for example, have been mixed. Several researchers have examined White women and Asian women and found that White women have higher rates of body dissatisfaction (e.g., Franzoi & Chang, 2002; Tylka, 2004) whereas other researchers have found similar body dissatisfaction levels between White women and Asian women (e.g., Cash et al., 2004; Siegel, 2002). Similarly, several researchers have found higher rates of body dissatisfaction in White women in comparison to Hispanic women (e.g., Barry & Grilo, 2002; Demarest & Allen, 2000; Suldo & Sandberg, 2000), whereas other researchers have found no significant differences in body dissatisfaction between White women and Hispanic women (e.g., Cachelin et al., 2002; Cash et al., 2004; Shaw et al., 2004). Overall, there are clear inconsistencies in body dissatisfaction when examining women from various racial/ethnic groups.

To investigate ethnicity and body dissatisfaction in women specifically, Wildes et al. (2001) synthesized and statistically combined the findings of 15 studies regarding racial/ethnic differences in body dissatisfaction in women. The authors found that overall, White women reported higher levels of body dissatisfaction in comparison to women who did not identify as White, with a moderate effect size. Similarly, Cash et al. (2004) also studied racial/ethnic differences in body dissatisfaction in women and reported the same finding. However, it is important to note that neither of the reviews (Wildes et al., 2001; Cash et al., 2004) examined whether women from distinct racial/ethnic groups (i.e., African American, Asian American, Hispanic, White) had differences in body dissatisfaction from one another. Additionally, both

reviews focused primarily on differences in body dissatisfaction between White and African American women (Grabe & Hyde, 2006). Therefore, more research needs to be conducted on additional distinct racial/ethnic groups, when examining body dissatisfaction or other body image concerns.

There are mixed results on racial/ethnic differences in body dissatisfaction in men as well. Additionally, the majority of body dissatisfaction researchers have compared White men to another racial/ethnic groups (i.e., Asian American, African, American, Hispanic/Latino) in contrast to comparing several ethnic groups in the same study sample. For instance, Hispanic/Latino men have reported less body dissatisfaction than White men in several studies (e.g., Altabe, 1998; Neumark-Sztainer et al., 2002), whereas other researchers have found no differences in body dissatisfaction between White and Hispanic/Latino men (e.g., Miller et al., 2000; Ricciardelli et al., 2007). After synthesizing several studies conducted on racial/ethnic differences in body dissatisfaction between Hispanic/Latino men and White men, Ricciardelli et al. (2007) concluded that there were no significant differences between the two groups. The authors noted that 12 out of the 16 studies they summarized reported no significant differences in body dissatisfaction between Hispanic/Latino and White men. Additionally, White men have consistently reported higher body dissatisfaction levels in comparison to African American men (e.g., Aruguete et al., 2004; Miller et al., 2000; Smith et al., 1999). A review by Ricciardelli et al. (2007); the authors noted that for 21 out of 27 summarized studies, White men reported higher levels of body dissatisfaction in comparison to Hispanic/Latino men. Several researchers have reported higher body dissatisfaction in Asian men in comparison to White men (e.g., Barnett et al., 2001; Kowner, 2002), whereas other researchers have reported no significant differences in body dissatisfaction between the two groups (e.g., Franzoi & Chang, 2002; Story et al., 1995).

Although there have been limited studies conducted with Native American men and White men in relation to body dissatisfaction, several researchers have found higher rates of body dissatisfaction in Native American men, in comparison to White men (e.g., Neumark-Sztainer et al., 2002; Smith & Krejci, 1991; Story et al., 1995). Overall, there is apparent body dissatisfaction present in men, however, more studies comparing several distinct racial/ethnic groups are needed to properly assess potential differences.

In order to study the prevalence of body dissatisfaction in various racial/ethnic groups, researchers have also examined how participants from different racial/ethnic groups idealize specific body shapes and sizes. For instance, Frisby (2004) inspected whether idealized images in the media affected the body esteem and body dissatisfaction in 48 African American female college students. Another purpose of the study was to determine if African American women make more social comparisons with African American models as opposed to White models (Frisby, 2004). Participants were asked to write down all thoughts and comparisons that came to mind when they read five articles and watched 18 advertisements. The authors found that exposure to idealized images of solely White models did not affect mood or self-concepts of African American participants. Frisby (2004) conducted an additional study with a different sample of 110 African American female college students. Participants were told to view and rate 10 experimental advertisements, and 10 filler advertisements, all of idealized African American models. Idealized models were perceived to have the desirable physical attributes respective to the race/ethnicity group (Frisby, 2004). There was a negative correlation between exposure to African American models and body esteem (Frisby, 2004). Body esteem is considered to be a component of a person's physical self-concept; a person's body esteem often involves their perception of their weight, as well as the thoughts and feelings they have regarding their body

(Williams et al., 2013). This study highlights the concept of similar versus dissimilar body comparisons, which may be further explored for both women and men of diverse racial/ethnic backgrounds.

There have been alternative explanations proposed in regard to the relationship between body dissatisfaction and ethnicity. For example, Fitzsimmons-Craft and Bardone-Cone (2012) investigated body surveillance and its relationship with body dissatisfaction. Body surveillance is defined as a consistent worry a person has regarding the appearance of their body; someone with body surveillance will likely be very preoccupied with how their appearance looks to others (Fitzsimmons-Craft & Bardone-Cone, 2012). The study used a longitudinal design, with an ethnically diverse sample. The study included 276 college students who identified as women; 97 identified themselves as African American/Black, 179 as Caucasian/Non-Hispanic/White (Fitzsimmons-Craft & Bardone-Cone, 2012). At time one and time two, five months apart, participants completed the same set of questionnaires including the SPAS, the Spielberger State-Trait Anxiety Inventory (STAI; Spielberger et al., 1970) to measure trait anxiety, the Iowa-Netherlands Comparison Orientation Measure (INCOM; Gibbons & Buunk, 1999) to measure general social comparisons, the Objectified Body Consciousness Scale (OBCS; McKinley & Hyde, 1996) to measure body surveillance, and the Eating Attitudes Test- 26 (EAT-26; Garner et al., 1982) to measure eating disorder tendencies. White women had significantly higher levels of body dissatisfaction when compared to African American women at both time points of data collection. This finding is consistent with Warren's (2014) study on female undergraduate students; White women reported significantly higher overall body dissatisfaction, in comparison to Black women (the effect sizes were medium to large). Similarly, Kronenfeld et al. (2010) reported lower body dissatisfaction in African American women, in comparison to White

women. The limitations of all three studies (Fitzsimmons-Craft & Bardone-Cone, 2012; Kronenfeld et al., 2010; Warren, 2014) are that they did not include men or additional race/ethnicity groups.

It appears that body dissatisfaction varies amongst racial/ethnic groups, particularly in regard to idealized body shapes and sizes. Methodology of future body dissatisfaction studies would benefit from the inclusion of several racial/ethnic groups, to more closely investigate how body dissatisfaction relates to race/ethnicity. Further, researchers should include analyses of within-group differences (Crago & Shisslak, 2003). Investigating one's ethnic identity, for example, could provide more insight towards within-group differences.

Body dissatisfaction and ethnic identity. The relationship between body dissatisfaction and ethnic identity is somewhat under investigated. Body dissatisfaction researchers have primarily focused on samples of African American participants (e.g., Henrickson et al., 2010; Rogers Wood & Petrie, 2010). Generally, it appears that a stronger ethnic identity is negatively correlated with body dissatisfaction in African American women specifically (Hesse-Biber et al., 2010; Rogers Wood & Petrie, 2010). Researchers suggest that ethnic identity may be protective against unrealistic body ideals that exist in a majority culture (Root, 1990). Moreover, it appears that ethnic identity could then be protective against body dissatisfaction, however, more racial/ethnic groups need to be examined. In contrast, individuals with a conflicted ethnic identity may be torn between accepting their own body and desiring the body ideal promoted in the majority culture around them if they belong to a non-majority racial/ethnic group (i.e., the thinness ideal; Henrickson et al., 2010). A drive for thinness is a feature of body dissatisfaction. To examine thinness ideals in relation to ethnic identity, Henrickson et al. (2010) studied 93 African American female students; the average age of participants was 20.7 years old.

Researchers distributed the Multigroup Ethnic Identity Measure (MEIM; Phinney, 1992) that measured various aspects of ethnic identity, as well as the Thinness and Restricting Expectancy Inventory (TREI; Hohlstein et al., 1998) that measured expectancies that thinness would lead to life improvement. Strong expectancies about thinness were negatively correlated with ethnic identity (Henrickson et al., 2010). The authors suggested that an individual's ethnic identity may be protective against body dissatisfaction. While the above study is helpful and provides useful data regarding ethnic identity and body dissatisfaction, researchers only examined one racial/ethnic group. Additional groups, such as Latino/Latina and Asian American populations, need to be included in more studies to suggest if ethnic identity is indeed protective against body dissatisfaction.

Of the studies that have included several racial/ethnic groups, the results concerning ethnic identity and body dissatisfaction are mixed. Rhea and Thatcher (2013) studied 893 girls from three racial/ethnic groups of similar ages ($M = 15.5$), including White girls, African American girls, and Mexican American girls. Participants were sampled from six high schools; the study population was relative to the city's demographic composition. The MEIM was distributed to measure ethnic identity, as well as the Eating Disorder Inventory (EDI; Garner & Olmstead, 1984) to measure eating disorder behaviors, including body dissatisfaction. For African American girls, high ethnic identity was negatively correlated with body dissatisfaction. For White girls, high ethnic identity was positively correlated with body dissatisfaction. As for overall body dissatisfaction comparisons, White and Mexican American girls reported higher body dissatisfaction in comparison to African American girls (Rhea & Thatcher, 2013). Thus, it is apparent that ethnic identity could have a positive or negative correlation with body dissatisfaction, depending on the racial/ethnic group. Warren (2014) found similar differences in

body dissatisfaction levels in a sample of 287 women in college. Participants self-identified as African American ($n = 76$), White ($n = 104$), and Latina ($n = 106$). The mean age of participants was 18.99 years (Warren, 2014). The Satisfaction with Racially Salient Appearance Features (SAT-R) measured racially salient body area dissatisfaction (dissatisfaction with a person's physical appearance that may classify them as a member of a particular racial group). The MEIM was used to measure ethnic identity. Ethnic identity had a negative correlation with body dissatisfaction for the following appearance areas for all three groups: face, skin, nose, eyes, lips, lower body, and overall body (Warren, 2014). Overall, White and Latina women reported significantly higher body dissatisfaction in comparison to African American women (Warren, 2014). A limitation to the study was the lack of generalizability to older women, as well as other genders such as men and transgender individuals. Additionally, researchers only studied three racial/ethnic groups. Given the varying body dissatisfaction levels reported across groups, researchers could benefit from conducting research on additional racial/ethnic groups (e.g., American Indian/Alaskan Native, Native Hawaiian/Pacific Islander) to further investigate the relationship between ethnic identity and body dissatisfaction.

The adoption of the thin ideal has been positively associated with middle class populations living in westernized societies, however, these findings are not representative of more ethnically diverse populations. For example, Rogers Wood and Petrie (2010) examined 322 African American female college students, to investigate the relationship between body dissatisfaction (more specifically, the thin ideal) and ethnic identity. Among several other measurements, the MEIM was distributed to measure ethnic identity, the Beliefs About Attractiveness Scale-Revised (BAAR; Petrie et al., 1996) to measure participants' agreement with societal standards of beauty and attractiveness, and a revised version of the Body Shape

Questionnaire (BSQ-10-R; Mazzeo, 1999) to measure preoccupation with body size and shape. The strength of participants' ethnic identity was negatively associated with their internalization of societal beauty standards, particularly the thin ideal. However, the more societal pressure participants felt, the more they internalized those pressures and concerns in regard to weight, shape, and size. Thus, the internalization of societal attractiveness and beauty ideals, as well as body image concerns, appear to have positive correlations with body disturbance (Rogers Wood & Petrie, 2010). A limitation of the study included the lack of diversity in the sample; Rogers Wood and Petrie (2010) only investigated African American women.

Ethnic identity may be a protective factor against thin-ideal internalization and weight concerns. For example, thin-ideal internalization has been a result of Western media promoting the thin body, therefore the thin ideal has become a mainstream value in White culture (Warren et al., 2005). However, not every person will identify with this thin ideal, due to their differing racial/ethnic background and sense of identification with their ethnic group (i.e., ethnic identity). The importance placed on body ideals, respective to different racial/ethnic groups, will also influence rates of body dissatisfaction in each group. For instance, African Americans appear to measure attractiveness based on self-confidence (Poran, 2006) and Latinos/Latinas value close, mutually dependent relationships (Santiago-Rivera et al., 2002). Consequently, the strongest values respective to one's racial/ethnic background and identity can then protect racial/ethnic groups (e.g., African Americans, Asian Americans) from internalizing extreme body ideals that are not prioritized in their respective culture. Alternatively, various racial/ethnic groups may have different goal orientations for body image, or differing body ideals. There are a variety of additional factors that could influence the importance placed on body ideals, thus impacting body dissatisfaction prevalence across ethnic groups. Overall, further exploration of ethnic identity as

a contributor or potential protective factor against body dissatisfaction is needed before correlations can be suggested.

Overall, the relationship between body dissatisfaction and ethnic identity needs to be further explored in more diverse samples. The majority of literature conducted thus far is on women, therefore more studies need to be conducted on men to see how body dissatisfaction and other related constructs are associated with ethnic identity. While ethnic identity may be protective against body dissatisfaction for women, this may not be the case in men. However, while body dissatisfaction is useful to acknowledge patterns across different racial/ethnic groups, other constructs are being investigated that are more specific to a person's experience, emotions, and thoughts regarding their body, such as social physique anxiety.

Social physique anxiety and ethnicity. Researchers have suggested that ethnicity may be a key component in the experience of SPA (Russell, 2002), however, a consistent limitation in SPA research is the inclusion of several racial/ethnic groups in study samples. Social physique anxiety may vary significantly across racial/ethnic groups, therefore the relationship between ethnicity and SPA needs to be further investigated. Lack of racial/ethnic representation has been consistent across SPA focused studies, due to samples being predominantly White (e.g., Chu et al., 2008; Koyuncu et al., 2010; McLester et al., 2018; Miller et al., 2018; Portman et al., 2018; Rothberger et al., 2015). Additionally, several SPA studies have no mention of participants' racial/ethnic backgrounds, thus preventing the reader from acknowledging any potential variance in SPA across racial/ethnic groups. Another commonality in SPA studies is providing a racial/ethnic breakdown of a sample, but not directly examining SPA in relation to ethnicity. For instance, Grieve et al. (2008) investigated 134 college students and the sample was comprised of 104 (77.6%) White men, 18 (13.4%) African American men, three (2.2%) Asian American men,

one (0.7%) Latino American man, and seven (5.2%) men who identified from another racial/ethnic group not listed. The authors compared men who reported high and low SPA, however, they did not account for ethnicity in data analysis. Similarly, Chu et al. (2008) and Rothberger et al. (2015) provided the racial/ethnic background of participants, however, they only investigated SPA across sex, not race/ethnicity. Conducting research on all racial/ethnic groups is essential in order to have the ability to generalize results to large, diverse populations. If samples are predominantly White, or if ethnicity is not directly compared with SPA, data is limited for real-world application, beyond the constraints of controlled environments. Constructs such as body image vary between cultures, and between racial/ethnic groups. Thus, differences in SPA levels may result from directly comparing various racial/ ethnic groups.

Without examining ethnicity, it is uncertain if SPA interventions could successfully target diverse populations. To investigate SPA and ethnicity, Russell and Cox (2003) studied 168 college students (63 African American women and 105 White women). The mean age of participants was 20.69 years old. The authors found that African American women reported lower SPA in comparison to White women. Additionally, the authors found that ethnicity had significant correlations with SPA, for both White women and African American women (Russell & Cox, 2003). In light of these findings, it is possible that African American women are less vulnerable to SPA in comparison to White women, and that African American women have not internalized the same societally constructed body ideals as White women. Similarly, but with a sample of men, Russell (2002) investigated SPA in 557 men (407 White men and 150 African American men). The SPAS was distributed to measure SPA. Russell (2002) found that African American men reported lower SPA in comparison to White men. While the previously mentioned studies (Russell, 2002; Russell & Cox, 2003) provide valuable insight toward

ethnicity in relation to SPA, researchers only examined two distinct racial/ethnic groups (i.e., African American and White). Although more investigation is needed, it appears that SPA may be higher in White men and women, in comparison to African American men and women. There have been notable differences across racial/ethnic groups when comparing ethnicity with similar constructs to SPA (e.g., body image, body dissatisfaction), therefore it can be inferred that SPA levels could also vary across racial/ethnic groups. Additionally, it can be useful to reference health behaviors, such as physical activity or exercise, in relation to ethnicity, to investigate concepts such as motivation, feelings, and attitudes towards exercise.

Physical Activity, Exercise, and Race/Ethnicity

Given that regular physical activity or exercise is important for reducing rates of cardiovascular disease, stroke, and various forms of cancer, researchers have examined potential differences across racial/ethnic groups in order to guide health professionals to better implement physical activity interventions for diverse populations (Sohn et al., 2017). There are many factors that may contribute to high or low levels of physical activity or exercise; disparities need to be accounted for when examining different racial/ethnic groups, as well as socioeconomic status, perceived barriers, geographic characteristics, and education regarding physical activity (Saint Onge & Krueger, 2011). Therefore, the relationship between race/ethnicity and physical activity or exercise is rather complex and multi-faceted.

Personal, social, and environmental variables all influence one's physical activity or exercise participation, therefore ethnicity is important to examine in regard to physical activity (Singh et al., 2008). Geographic factors, for example, heavily influence an individual's physical activity levels, due to either limited or plentiful access to health-promoting resources (Sohn et al., 2017). For instance, at the community level, several researchers have found that men of racial

minority groups have a higher likelihood of living in residential areas with limited access to resources that encourage physical activity or exercise (e.g., Gordon-Larsen et al., 2006; Taylor et al., 2006). To further examine the relationship between geographic factors and physical activity levels across racial/ethnic groups, Sohn et al. (2017) conducted a review of 327,556 adult men in the United States; the sample was comprised of 200,163 White men (72%), 40,211 African American men (11%), 71,416 Latino men (14%), and 15,766 Asian men (4%). The mean age of the participants was 44.8 years old. To measure physical activity, Sohn et al. (2017) utilized the 2008 Physical Activity Guidelines from the Department of Health and Human Services; the guidelines state that adults should participate in at minimum 150 minutes of moderate-intensity physical activity per week, or at minimum 75 minutes of vigorous-intensity aerobic physical activity (Physical Activity Guidelines Advisory Committee, 2008). Sohn et al. (2017) used cross-sectional data reported from the National Health Interview Survey (NHIS). The authors found that, within every region, Latino men and Asian men reported lower levels of physical activity in comparison to White men (Sohn et al., 2017). Within the Northeast, West, and South regions of the United States, African American men reported lower levels of physical activity in comparison to White men. Thus, the researchers suggest that there are significant differences in physical activity levels depending on geographic factors, when investigating ethnicity (Sohn et al., 2017). Limitations of the study would be the lack of inclusion of additional gender groups beyond cisgender men. Similarly, researchers have reported that, in the U.S, 33.3% of White populations, 23.8% of Latino/Latina populations, and 23.3% of African American populations participate in regular leisure physical activity, however, this survey also did not include additional gender groups beyond cisgender men (Saffer et al., 2013). In order to properly assess physical activity or exercise levels across racial/ethnic groups, additional gender groups need to

be included and some standardization of how much one exercises is warranted given there are differences across varying levels.

Similarly, when examining women specifically, researchers have found that physical activity or exercise participation becomes more complex when several types of physical activity are accounted for. For instance, Brownson et al. (2000) examined 2,912 women who were 40 years and older; the diverse sample was comprised of 769 (26.4%) White women, 745 (25.6%) African American women, 738 (25.3%) American Indian/Alaskan Native women, and 660 (22.7%) Latina women. Researcher collected data via a telephone survey, using a modified version of the Behavioral Risk Factor Surveillance System (BRFSS). Researchers provided several definitions of regular physical activity. Overall, African American women and American Indian/Alaskan Native women reported the lowest physical activity levels, in comparison to Latina and White women (Brownson et al., 2000). In regard to regular exercise, African American women were less likely to engage in physical activity in comparison to White women, and Latina women were more likely to engage in physical activity, in comparison to White women. Given that the physical activity definitions provided included occupational physical activity, approximately three quarters of the sample reported being physically active. Women who resided in rural regions reported 33% higher rates of complete inactivity, in comparison to women who resided in urban regions (Brownson et al., 2000). Although the study was ethnically diverse and large, a limitation could include the lack of additional gender and age groups. Overall, the authors suggested that minority groups do not necessarily experience lower levels of physical activity than White groups, if several definitions of physical activity are provided to participants.

Overall, it is apparent that physical activity or exercise levels across racial/ethnic groups depend on many factors, and more research, with the inclusion of more gender groups, may need to be conducted to assess the relationship. While it is generally reported that minority groups report lower levels of physical activity in comparison to White populations (U.S. Department of Health and Human Services, 2000), researchers are finding contrasting data as they investigate physical activity and ethnicity more critically and closely (e.g., Brownson et al., 2000; Saffer et al., 2013). While ethnicity is important in regard to physical activity research, a more specific construct, such as ethnic identity, could provide further insight as to why there may be differences in physical activity across and within racial/ethnic groups.

Physical activity, exercise, and ethnic identity. The relationship between physical activity or exercise and ethnic identity has been studied on a limited basis. Ethnic identity has been associated with various physical activity related topics such as motivation for weight loss, self-esteem, fitness stereotypes, as well as body dissatisfaction (Smalley et al., 2016). However, it is unclear if ethnic identity, particularly the attachment to one's ethnic identity, is positively or negatively correlated with physical activity (Smalley et al., 2016). There have simply been too few of studies conducted on ethnic identity and physical activity to infer a potential correlation. To examine the relationship between ethnic identity and physical activity, Smalley et al. (2016) studied 154 African American women, with a mean age of 50.97 years old, who had been diagnosed with diabetes and/or hypertension and a BMI of 25 or higher. Researchers distributed the MEIM that measures the strength of participants' ethnic identity; participants' stage of change for exercise was measured using a 24-item inventory adapted from the transtheoretical model (Marcus et al., 1992). Attachment to one's ethnic identity was the only variable that was associated with engagement in exercise. Specifically, women with high ethnic identities had

higher engagement in exercise in comparison to women with low ethnic identities (Smalley et al., 2016). The authors suggested that ethnic identity may be a contributing factor for exercise motivation, specifically in African American women. A limitation of the study included that the sample was comprised of only African American women from the same rural region, therefore results may not be representative to other populations with differing racial/ethnic backgrounds or gender identification. Other researchers have encountered the same limitation when investigating ethnic identity and physical activity. Brown et al. (2016) examined 1,463 pregnant women with gestational diabetes (GDM), who were at risk for type 2 diabetes; the sample was comprised of 58 African American women (3.4%), 168 Chinese women (11.5%), 165 Filipina women (11.3%), 144 South Asian women (9.8%), 240 Latina women (16.4%), 375 White women (25.6%), 160 multiethnic women (10.9%), and 153 women identified as an Asian racial/ethnic group that was not listed (10.5%). Researchers distributed the MEIM for the degree of participants' ethnic identity, and physical activity engagement was measured using a modified version of the Pregnancy Physical Activity Questionnaire (PPAQ; Chasan-Taber et al., 2004). From the overall sample, physical activity was positively associated with a higher ethnic identity (Brown et al., 2016). When the authors compared across racial/ethnic groups, Latina women with higher ethnic identities reported increased physical activity levels, in comparison to the rest of the sample. Although the sample was large and diverse, a limitation of the study included that the results may only be generalized to pregnant women with GDM who are at risk for type 2 diabetes. Overall, there is an apparent need to continue exploring more individualized variables such as ethnic identity, when investigating exercise and physical activity levels.

More examination of ethnic identity in relation to physical activity or exercise could help identify nuanced within-group differences in physical activity or exercise participation, in

comparison to measuring ethnicity alone. However, given that physical activity is such a broad construct and exercise is more pre-determined with a clear objective that likely differs across individuals (Caspersen et al., 1985), exercise may be more appropriate to examine with individual-specific variables such as race/ethnicity or ethnic identity. For example, a person's motivation to exercise regularly may relate to their body ideals, which may be correlated with their ethnic identity. Researchers may need to examine more diverse groups of people before highlighting any patterns in ethnic identity, particularly when comparing across racial/ethnic groups. For instance, although African American women have reported higher attachment to ethnic identity when compared to other racial/ethnic groups, it is unclear if this attachment is positively or negatively related exercise (Smalley et al., 2016). In other words, no firm conclusions can be inferred as to why specific racial/ethnic groups have high or low ethnic identity, and how these rates relate to physical activity or exercise engagement. Moreover, an understanding of ethnic identity is important to better account for populations at risk for negative psychological experiences in relation to physical activity or exercise, such as social physique anxiety.

Conclusion

There has not been sufficient data reported on SPA in diverse populations in relation to physical activity or exercise. Studying ethnic identity, as opposed to simply ethnicity, would be useful in studying SPA prevalence in exercisers, given that ethnic identity involves more of an attachment and sense of belonging to one's ethnic group (Phinney, 1992). Measuring ethnic identity would therefore be more specific to the person's experience within their respective ethnic group. Phinney (1992) argued that ethnic identity is a component of one's self-concept, as is SPA, therefore the two constructs may be important to investigate simultaneously. There could

be differences in SPA across ethnic groups, for ethnic identity may be a protective factor against SPA, similar to how ethnic identity has been a protective factor against thin-ideal internalization and weight concerns in some individuals (Warren et al., 2005). Given the limited research conducted thus far on ethnic identity and SPA, further understanding of how the two may be related could add valuable insight to exercise psychology literature, and help researchers examine both gender and race/ethnicity more closely in SPA research. Health clubs, gyms, and other fitness organizations can gain more insight if SPA variance is related to one's ethnic identity, thus aiding their efforts to produce body positive messages and ethnically supportive environments. Additionally, health professionals and psychologists could benefit from research conducted on SPA and ethnic identity, to provide more targeted interventions and services for individuals at higher risk for developing SPA.

Although there have been several studies conducted on SPA in exercisers who identify as women, there is minimal research on SPA in additional gender groups. In order to investigate SPA along the full gender spectrum, studies need to include non-binary and transgender individuals in addition to cisgender groups. There is also minimal racial/ethnic diversity in SPA study samples, particularly due to researchers examining predominantly White populations (e.g., McLester et al., 2018; Strong et al., 2006). Some researchers may have reported the racial/ethnic backgrounds of participants; however, the majority have not actually tested for potential correlations between race/ethnicity and SPA (e.g., Chu et al., 2008; Grieve et al., 2008; Rothberger et al., 2015). Rather than simply reporting participants' racial/ethnic groups, it may be more personal and relevant to instead investigate their ethnic identities. Ethnic identity may be more useful to study in relation to SPA because individuals from different racial/ethnic groups may exhibit varying physique related concerns. Obtaining more diverse study samples could help

researchers understand how SPA may vary in conjunction with exercise participation, depending on one's ethnic identity.

The present study was designed to explore the relationship between SPA and ethnic identity in a diverse sample of exercisers. Three research questions were proposed: 1) What is the relationship between SPA and ethnic identity among exercisers? 2) When keeping ethnic identity constant, are there differences in SPA across different racial/ethnic groups of exercisers? 3) Which is the strongest predictor(s) of SPA among exercisers: gender identity or total ethnic identity? The findings from the present study could provide knowledge on who may be at greater risk for SPA, which measures may be more appropriate when studying differences in SPA in exercise, and new information about SPA levels related to additional genders/non-binary groups and racial/ethnic groups).

Introduction

Body dissatisfaction, a negative form of body image, denotes a maladaptive experience with the self (Gattario & Frisé, 2019). Individual body dissatisfaction may vary across racial/ethnic groups due to contrasting cultural and social contexts (Crago & Shisslak, 2003). Thus, examining the relationship between body dissatisfaction and ethnicity is important for practitioners to consider when addressing clients' body image concerns, given the cultural differences that may occur in body perceptions. Body dissatisfaction occurs for both women and men; in the United States between 13.4% and 31.8% of women are dissatisfied with their bodies compared to between 9.0% and 28.4% for men (Fallon et al., 2014). Adverse health outcomes positively associated with body dissatisfaction in men include depression and suicidal ideation (Griffiths et al., 2016), eating disorder pathology (Smith et al., 2011), and the use of anabolic steroids (Kanayama et al., 2006). For women, adverse health outcomes positively associated with body dissatisfaction include eating disorder pathology, depression, preoccupation with weight (Sharpe et al., 2018), and excessive dieting (Sanftner et al., 2009). Additionally, conflicted gender identity has been positively associated with body dissatisfaction in transgender populations (e.g., Ålgars et al., 2012). It is important to understand the nuances of how someone's gender and racial/ethnic identity interplay with exercise barriers such as body dissatisfaction.

Body dissatisfaction appears to be a health concern for several gender groups. There have been mixed results in racial/ethnic differences in body dissatisfaction in particular gender identity groups. For instance, African American women have reported lower body dissatisfaction in comparison to White women (e.g., Grabe & Hyde, 2006; Wildes et al., 2001). Several researchers have surveyed White women and Asian women and found that White women have

higher rates of body dissatisfaction (e.g., Franzoi & Chang, 2002; Tylka, 2004) whereas other researchers have found similar body dissatisfaction levels between White women and Asian women (e.g., Cash et al., 2004; Siegel, 2002). Hispanic/Latino men have reported less body dissatisfaction than White men in several studies (e.g., Altabe, 1998; Neumark-Sztainer et al., 2002), whereas other researchers have found no differences in body dissatisfaction between White and Hispanic/Latino men (e.g., Miller et al., 2000; Ricciardelli et al., 2007). However, White men have consistently reported higher body dissatisfaction levels in comparison to African American men (e.g., Aruguete et al., 2004; Miller et al., 2000). Ethnicity may influence body image concerns differently for various racial/ethnic groups (Miller et al., 2000; Penkal & Kurdek, 2007), thus making ethnicity a variable of importance for body image research. However, given that the literature has presented inconsistent findings in body dissatisfaction, little is known about individual differences across genders and races/ethnicities, one particular type of body dissatisfaction being social physique anxiety.

Social physique anxiety (SPA), one specific concern under the umbrella of body dissatisfaction, is a term to describe the anxiety or distress people feel when they perceive that their bodies are being evaluated by others (Hart et al., 1989). Individuals with SPA may be self-conscious about certain aspects of their body, such as weight, body fat composition, or muscle tone (Portman et al., 2018). People with high SPA may avoid situations where they will be physically evaluated due to their discomfort (McLester et al., 2018). Two theoretical explanations of physique related anxiety have been proposed. Self-presentation theory (Schlenker & Leary, 1982) describes the directing of one's attention to specific aspects of the self they are proud of (i.e., accomplishments), while aiming to avoid or deemphasize other aspects that produce stress or anxiety (i.e., physique or body image). Schlenker and Leary (1982)

argued that once a person has awareness of the perceptions of other people around them, anxiety can result, especially in social settings. Similarly, Festinger's (1954) social comparison theory explains that when there is an absence of objective standards, people tend to compare themselves to others, in order to determine where they fit in (Festinger, 1954). Individuals are motivated to create comparisons so they can decipher where they stand in a given domain, a process that can invoke anxiety depending on the person and situation. Similar to tenets of social comparison theory, it has been found that individuals with SPA are very much consumed with social evaluations and comparisons in regard to their physique, however, there is little information known on what factors contribute to individual differences in SPA, particularly when it relates to exercise (a subcategory of physical activity that is planned, repetitive, and structured, with a clear objective for the improvement or maintenance of physical fitness; Caspersen et al., 1985).

For example, a person experiencing high SPA will likely show increased distress during fitness tests and in fitness environments (McLester et al., 2018). Further, individuals with SPA who exercise near others commonly experience higher anxiety (Focht & Hausenblaus, 2004). Specifically, Focht and Hausenblaus (2004) found that the presence of other exercisers was a core stimulus that appeared to increase SPA in a gym setting. In contrast, some exercise behavior may safeguard against SPA (Berry & Howe, 2004). For example, following exposure to various health promotion and physical activity videos, exercisers reported decreased SPA, whereas non-exercisers reported no change in SPA (Berry & Howe, 2004). In other words, already active exercisers were positively influenced by the health promotion and physical activity videos. Researchers have also hypothesized that exercise maintenance may help alleviate symptoms of SPA in exercisers. For example, McAuley et al. (2002) examined 174 men and women and found that after a six-month structured exercise program, increased fitness levels were negatively

associated with SPA. However, it is important to note that some exercisers exercise at home or outdoors away from others, and SPA has not been examined in those environments. Overall, it is unclear if SPA is a motivator (e.g., Frederick & Morrison, 1996) or demotivator (Eklund & Crawford, 1994; McAuley et al., 1995) for exercise. It could be that the relationship between SPA and exercise depends on the setting in which one exercises; there are also differences across groups to consider, such as varying gender identities.

Gender differences in SPA have been consistently found between women and men, however research is lacking on transgender women and men and non-binary individuals. A consistent finding throughout SPA research is that women report higher rates of SPA, in comparison to men (e.g., Chu et al., 2008; McLester et al., 2018; Miller & Fry, 2018; Portman et al., 2018; Rothberger et al., 2015). Generally, it appears that men have more of a drive for masculinity, and women have more of a drive for thinness, and both of these drives could lead to anxiety regarding one's physique (McCreary & Saucier, 2009). Additionally, frequent body comparisons appear to be positively correlated with SPA prevalence. Specifically, McCreary and Saucier (2009) examined 383 college students and found that women reported higher levels of SPA in comparison to men, as well as more frequent body comparisons, specifically weight and muscle-related forms of body comparisons. McLester et al. (2018) found the same difference in SPA between genders in a college student sample of 212 men and women; men reported lower mean SPA scores than women. There appears to be a consistent pattern of higher SPA in women, however, it is important to note that SPA researchers have not examined gender inclusive samples, as transgender or non-binary groups have not been included in previous samples. Additionally, previous researchers did not account for exercise status, which is known to have a complex relationship with SPA (Berry & Howe, 2004; Melching et al., 2016). To better

understand SPA across various populations, more gender inclusivity and representation is needed to properly assess SPA as a construct in those who exercise. Additionally, researchers have targeted primarily college student participants in their SPA research, and traditional college students are often younger adults. Therefore, the relationships between gender and SPA beyond young adulthood is currently unknown if only traditional college-aged, younger adults have been studied, less so with the additional variable of race/ethnicity.

While gender has been of consistent interest in SPA research, studies reporting other variables such as race/ethnicity are scarce. Researchers have suggested that race/ethnicity could be influential in the study of SPA, however, studies do not often report several race/ethnicity groups (e.g., Russel, 2002; Russell & Cox, 2003). The inclusion of several race/ethnicity groups is needed in research to establish patterns in SPA across groups. Expanding knowledge on individual differences in SPA could assist professional practice, specifically the tailoring of SPA interventions for diverse individuals. Of the limited studies conducted on SPA and race/ethnicity, Russell (2002) studied the relationships between SPA, body dissatisfaction, and self-esteem in 557 exercisers (407 White men, 150 African American men). White men reported higher rates of SPA in comparison to African American men. Similarly, Russell and Cox (2003) studied women's SPA in 168 college student exercisers (63 African American women, 105 White women). White women reported higher levels of body dissatisfaction and SPA in comparison to African American women. Effect sizes of either study were not reported so the size of differences in SPA between African American and White participants is unknown, and the only reported gender identities were assumed to be that of cisgender. Although these studies (Russell, 2002; Russell & Cox, 2003) provide insight on the relationship between race/ethnicity, SPA, and exercise in men and women, researchers examined only two ethnic groups and measured gender

on a presumed binary scale. Additional research is needed on several more racial/ethnic and gender groups to better understand and predict SPA as it relates to varies across racial/ethnic groups of exercisers. Given that samples of exercisers in SPA and race/ethnicity studies have been predominantly White, and there is limited investigation on the relationship between race/ethnicity and SPA, data are limited for real-world application. Expanding knowledge in at-risk demographics for SPA could increase understanding of why there may be differences in activity patterns across race/ethnicity. For example, within every region from the National Health Interview Survey, Latino men and Asian men reported lower levels of physical activity (any physical movement that generates energy expenditure, with the function of skeletal muscles; Caspersen et al., 1985) in comparison to White men (Sohn et al., 2017). Within the Northeast, West, and South regions of the United States, African American men reported lower levels of physical activity in comparison to White men. In a study conducted on women and exercise levels, African American women and American Indian/Alaskan Native women reported the lowest physical activity levels, in comparison to Latina and White women (Brownson et al., 2000). In regard to exercise, African American women were less likely to engage in physical activity in comparison to White women, and Latina women were more likely to engage in physical activity, in comparison to White women. Motivation for exercise or physical activity could account for some of these differences; however, it could be that how someone identifies with their gender or race/ethnicity may be more relevant when measuring relationships with SPA and exercise.

Although race/ethnicity categories are often used to delineate groups in research, further exploration into a person's identity, particularly their ethnic identity, could be valuable while simultaneously examining SPA in exercisers. Ethnic identity refers to the strength of

identification one feels with one's ethnic group (Baugh et al., 2010). Additionally, ethnic identity is defined as how people interpret their ethnicity (Phinney, 1996). Ethnic identity is one of the many dimensions of the self, comprised of intergroup relations, linguistic behavior, as well as a person's psychological well-being (Baugh et al., 2010). Ethnic identity encompasses individuals' ethnic backgrounds, values, and traditions, while also representing their feelings and thoughts regarding their ethnic group (Stojek et al., 2010). Although ethnicity and ethnic identity are related, they are not the same. Individuals within the same ethnic group may have differing levels of ethnic identity, and ethnicity is a very broad construct (e.g., Cokley, 2005; Lee, 2009). In relation to exercise, Hovick and Holt (2016) examined race/ethnicity, ethnic identity, and physical activity levels in 1,452 male and female participants, ages 50 years and older (35.5% Black, 31.5% Hispanic, and 33% White participants). Participants completed the Multigroup Ethnic Identity Measure-Revised (Phinney & Ong, 2007) and self-report physical activity questions. A stronger ethnic identity, regardless of race/ethnicity, was positively associated ($r_s = .16$) with higher physical activity levels ($p < .01$; Hovick & Holt, 2016). However, researchers only investigated three race/ethnicity groups, and non-binary or transgender groups were not included. Moreover, it may be useful to continue investigating ethnic identity separate from ethnicity.

Ethnic identity could be more telling than ethnicity in SPA research; individuals with varying ethnic identities may be more or less affected by social evaluation of one's physique, depending on several factors that may be grounded in one's culture. Additionally, ethnic identity could be a protective factor against thin-ideal internalization and weight concerns (Warren et al., 2005), and these concerns are often present in individuals with SPA. Thus, values and ideals concerning one's appearance could differ across exercisers from distinct ethnic groups,

depending on one's ethnic identity within that group. There remains a need for larger, more diverse samples of exercisers (race/ethnicity and gender) to examine the relationships between individual exerciser differences (ethnic identity, race/ethnicity, gender) and SPA. Additional research determining the triggers and prevalence of SPA in more diverse groups will help researchers gain further understanding of the construct, and potentially develop more targeted interventions to reduce its effects. In order for practitioners to effectively and ethically work with clients of diverse gender identities and race/ethnicity backgrounds, more information on clients' ethnic identities and gender identities would be paramount to better understand and empathize with clients' individual experiences. Simply categorizing clients into gender identity groups or race/ethnicity groups without further knowledge of within-group experiences or individual ethnic identity levels may limit the building of rapport and communication between practitioners and their clients.

The present study was designed to explore the relationship between SPA and ethnic identity in a diverse sample of exercisers. Three research questions were proposed: 1) What is the relationship between SPA and ethnic identity among exercisers? 2) When keeping ethnic identity constant, are there differences in SPA across different racial/ethnic groups of exercisers? 3) Which is the strongest predictor(s) of SPA among exercisers: gender identity or total ethnic identity? The findings from the present study could provide knowledge on who may be at greater risk for SPA, which measures may be more appropriate when studying differences in SPA in exercise, and new information about SPA levels related to additional genders/non-binary groups and racial/ethnic groups). Health clubs, gyms, and other fitness organizations can gain more insight if SPA variance is related to one's ethnic identity, thus aiding their efforts to produce body positive messages and ethnically inclusive environments. These findings may provide

practitioners with insight on the relevancy of particular SPA or body-image related measurements, and if these measurements need to be updated. Lastly, the current study may assist in the development of gender and race/ethnicity appropriate SPA interventions.

Methods

Participants

This study was comprised of 1765 exercisers. The age range of participants was between 18 and 81 years old ($M_{\text{age}} = 30.83$; $SD = 6.81$, mode = 30, skewness = 1.589, kurtosis = 6.43). Participants identified as women (28.8%), men (69.6%), genderqueer/fluid (0.1%), nonbinary (0.2%), trans men (0.1%), trans women (0.2%), two-spirit (0.1%), a gender not listed (0.1%), and preferred not to state (0.9%). Participants' racial/ethnic background was as follows: American Indian/Alaskan Native (7.1%), Native Hawaiian/Pacific Islander (1.3%), Asian/Asian American (3.4%), Hispanic/Latino/Latina/Latinx (3.5%), White/European American (72.2%), Black/African American (2.9%), Arab/Middle Eastern (0.2%), prefer not to state (0.2%), two races/ethnicities (6.4%), and more than two races/ethnicities (2.8%). Reported exercise settings included (34.1%) alone (without a partner/group) in a private setting, (30.8%) alone (without a partner/group) in a public setting, (37.3%) with 1-2 partner(s) in a private setting, (27.8%) with 1-2 partner(s) in a public setting, (15.9%) with a group in a private setting, (14.5%) with a group in a public setting, and (43.3%) multiple settings. Participants reported a variety of top three exercise types, including running, swimming, jogging, CrossFit, yoga, cycling, Zumba, and weightlifting.

Measures

Social Physique Anxiety Scale (SPAS; See Appendix E). The SPAS (Hart et al., 1989) consists of 12 items with a five-point Likert scale, ranging from 1 (*not at all*) to 5 (*extremely*). All items

relate to the degree of anxiety people feel due to the social evaluation of their physique. Scores on the SPAS range from 12-60. High scores on the SPAS indicate high levels of SPA. The total score on the SPAS was used in data analysis. The SPAS has high internal reliability with a Cronbach's alpha of .90, as well as an eight-week test-retest reliability with a coefficient of .80 (Hart et al., 1989).

Multigroup Ethnic Identity Measure-Revised (MEIM-R; See Appendix F). The MEIM-R (Phinney & Ong, 2007) is a revised version of the MEIM (Phinney, 1992). The MEIM-R is comprised of six total items and two subscales (ethnic identity exploration and ethnic identity commitment) that relate to one's ethnic identity. Questions are rated on a five-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). High scores on the MEIM-R indicate high levels of ethnic identity. Scores of each subscale as well as the overall MEIM-R score can be used to measure degree of ethnic identity, however only the total scores were used in the current study. The MEIM-R has been primarily utilized in college student samples, and the total scale's Cronbach's alpha has ranged from .81 to .89 (Phinney & Ong, 2007; Yoon, 2011). Further, the Cronbach's alpha for the ethnic identity exploration subscale and ethnic identity commitment subscale were .76 and .91, respectively (Brown et al., 2014).

Godin Leisure-Time Exercise Questionnaire (GLTEQ; See Appendix G). The GLTEQ (Godin & Shephard, 1997) identifies the number of times an exerciser engages in mild (minimal effort), moderate (not exhausting), and strenuous (heart beats rapidly) exercise in a typical week. Each frequency score is then computed into a metabolic equivalent of task (MET) value (Amireault & Godin, 2015). The MET score can then be summed to acquire a leisure score index (LSI). The two-week test-retest reliability coefficients for the GLTEQ for mild, moderate, and strenuous activity were 0.48, 0.46, and 0.94, respectively (Godin & Shephard, 1985). Although a value of

0.40 is preferable to establish predictive validity (Fleiss, 1981) and Godin and Shephard (1985) reported a value 0.30, the study was a concurrent validity study, therefore a value of 0.30 proved high enough to eliminate the possibility of chance. To ensure accurate self-selection of exercisers into the current study, a minimum score of 24 on the LSI was used to confirm exercise regularity inclusion criteria.

Demographics (See Appendix H). Participants responded to demographic questions regarding their age, gender identity, primary exercise setting, and top three exercise types they engaged in during an average week. Lastly, participants indicated the race/ethnicity they identified with.

Procedure

Following approval from the Institutional Review Board, Zumba and CrossFit gyms across the United States were contacted via email, to obtain a large, diverse sample. At the time of data collection, the national websites for Zumba and CrossFit included search engines for gyms available by state. A combination of sampling techniques was utilized by the researcher including stratified random sampling. Using a random number generator, the researcher randomly selected 20 Zumba gyms and 20 CrossFit gyms at a time in the United States, per round of sampling. The researcher recruited an additional 20 groups per exercise activity each round until a minimum of 400 participants completed the survey. In addition, snowball sampling was utilized by asking exercisers who received the survey to then forward the link to other exercisers who could potentially meet inclusion criteria. Additionally, the researcher utilized convenience sampling by posting recruitment material on personal social media sites (i.e., Facebook, Instagram) and used snowball sampling by asking participants to forward the study information to other exercisers.

Recruitment materials included an electronic link to the anonymous questionnaires and the informed consent form via Qualtrics. Participants had the option at the end of the study to proceed to a separate drawing to win one of ten \$25 Amazon gift cards. Participants met the inclusion criteria (See Appendix C) if they had been exercising regularly for at least six months and were over 18 years old.

A total of 60 gyms were contacted from the national websites for Zumba and CrossFit. A total of 1,997 individuals started the survey, 1,990 completed the survey, and 1,765 were usable responses (e.g., exercisers who met inclusion criteria and submitted complete data). Excluded data was comprised of 27 identical responses submitted by the same individual, and 198 responses that did not meet inclusion criteria. Exercisers could select more than one race/ethnicity on the survey; therefore, the principal researcher created two categories (two ethnicities and more than two ethnicities) that were analyzed in addition to the original race/ethnicity groups.

Data Analysis

Data were analyzed using SPSS statistical software (version 27.0). A Spearman Rank Order correlation was performed to examine the relationship between SPA and total ethnic identity among exercisers. An ANCOVA was planned with race/ethnicity group as the independent variable and SPA as the dependent variable to test the differences of SPA among race/ethnicity groups using ethnic identity as a planned covariate. Third, a multiple regression was performed to examine if gender identity or total ethnic identity were predictors of SPA. Social physique anxiety was the dependent variable, and gender identity and total ethnic identity were the two independent variables.

Results

The Cronbach's alpha for the entire sample was .59 for the SPAS, however, when analyzing the reliability of the scale by gender group, the Cronbach's alphas for cisgender women, cisgender men, and non-cisgender exercisers were as follows: .68, .54, and .27, respectively. The Cronbach's alpha was .82 for the MEIM-R.

The Spearman Rank Order correlation was used to test the relationship between the SPAS and the MEIM-R among exercisers due to a violation in the test of normality. There was a small, negative correlation between SPA and total ethnic identity, $r_s = -.063$, $N = 1765$, $p = .008$, for the entire sample, with higher levels of SPA associated with lower levels of ethnic identity. When separated by race/ethnicity group, there were statistically significant relationships found among two groups, all other groups there was no statistically significant relationships found, as shown in Table 1. For Black/African American exercisers there was a moderate, statistically significant, negative correlation and for White/European American exercisers, there was a small, negative correlation. Exercisers who identified as Arab/Middle Eastern or preferred not to state were omitted in any race/ethnicity comparison analysis due to their small sample sizes.

Given that ethnic identity was not statistically significantly related to SPA for all groups in the independent variable of race/ethnicity, ethnic identity could not be entered as a covariate when testing for mean differences in SPA among race/ethnicity groups in the ANCOVA. Therefore, an ANOVA was used to test differences among means of SPA across race/ethnicity groups. The Levene's test of homogeneity of variance was violated ($p = .000$), thus, the Welch test statistic was utilized. There were no statistical differences in means between groups: $F(7, 1750) = 1.395$, $p = .190$, $\eta^2 = .00613$. See Table 2 for means and standard deviations.

For the multiple regression, gender was collapsed into three variables of cisgender women, cisgender men, and non-cisgender individuals due to small sample size of the original

gender subgroups. When investigating the predictive value of gender identity and total ethnic identity, the model was statistically significant, $R^2 = .010$, $F(3, 1754) = 5.737$, $p = .001$ and explained 1% of the variance in SPA. There was a significant, unique contribution from total ethnic identity and cisgender women towards SPA. In the final model, total ethnic identity recorded a higher beta value ($\beta = -.084$, $p = .000$) than cisgender women ($\beta = -.054$, $p = .024$), however both explained less than 1% of the variance in SPA scores.

Three exploratory analyses were conducted. An ANOVA tested mean differences in ethnic identity across racial/ethnic groups. Levene's test of homogeneity of variance was violated ($p = .000$) thus, the Welch test was utilized. There were significant differences found between racial/ethnic groups: $F(7, 1750) = 3.377$, $p = .001$, $\eta^2 = 0.01$. Post-hoc comparisons using the Tukey HSD test indicated that the mean ethnic identity score for Asian/Asian American exercisers ($M = 3.20$, $SD = .89$) was lower than White exercisers ($M = 3.54$, $SD = .61$) with a medium effect size (Cohen's $d = 0.44$), and lower than Black/African American exercisers ($M = 3.62$, $SD = .65$) with a medium effect size (Cohen's $d = 0.54$). Additionally, the mean ethnic identity score for Asian/Asian American exercisers ($M = 3.20$, $SD = .89$) was lower than exercisers who identified with more than two ethnicities ($M = 3.60$, $SD = .53$) with a medium effect (Cohen's $d = 0.55$). Second, an additional exploratory ANOVA was conducted to investigate differences in SPA levels across gender groups. Levene's test of homogeneity of variance was violated ($p = .000$) therefore, the Welch test was utilized. There were no statistically significant differences found between three gender groups (non-cisgender; cisgender women; cisgender men): $F(2, 1755) = 2.414$, $p = .090$, $\eta^2 = 0.002$. Thirdly, an exploratory Spearman Rank Correlation was conducted to examine differences in SPA and age of exercisers.

There were no correlations found between age and SPA in the total sample: $r_s = -.003$, $N = 1761$, $p = .895$ (four responses excluded for missing age data).

Discussion

The present study is the first known to investigate the relationship between SPA and ethnic identity in exercisers. This study sample included a large ($N = 1,765$), diverse pool of exercisers, whereas the majority of previous SPA studies have included smaller convenience samples with predominantly White participants (e.g., McCreary & Saucier, 2009; McLester et al., 2018; Portman et al., 2018). Additionally, the average age of current participants was 30.83 years old, thus providing more insight into how SPA may occur in exercisers of various ages, given that previous SPA studies have included mainly college students (e.g., McCreary & Saucier, 2009; McLester et al., 2018; Strong et al., 2006). The college student population is important to consider, given that the common developmental pattern for negative body image, a similar construct to SPA, involves significantly more negative body image concerns during early adolescence, followed by stabilization in emerging adulthood (Gattario & Frisén, 2019). Further, previous studies may have been investigating SPA at its peak, assuming that people experience SPA and negative body image similarly. Additionally, the present study included several gender groups beyond cisgender women and men, whereas previous SPA studies have only compared SPA levels between women and men, and it is unclear if these groups included non-binary individuals (e.g., Chu et al., 2008; Portman et al., 2018; Rothberger et al., 2015). Further, binary identification could have been assumed. Overall, examining SPA and ethnic identity simultaneously may be useful, while also accounting for several gender groups.

There was a small, negative correlation between SPA and total ethnic identity for the entire sample, with higher levels of SPA associated with lower levels of ethnic identity. When

racial/ethnic groups were examined separately, for Black/African American exercisers there was a moderate, negative correlation, and for White/European American exercisers, there was a small, negative correlation. Specifically for Black/African American exercisers, higher ethnic identity may contribute to lower levels of SPA, or the moderate negative relationship may be signifying that Black/African American exercisers have different goal orientations for body image, or differing body ideals in comparison to other racial/ethnic groups. Black/African American women with higher levels of ethnic identity, for example, have reported lower body dissatisfaction, a similar construct to SPA (e.g., Hesse-Biber et al., 2010). Alternatively, higher SPA may contribute to lower levels of ethnic identity in Black/African American exercisers. The timing of data collection (January 2021) may also be particularly relevant for Black/African American exercisers; this group could have been influenced by their activism for social justice movements such as Black Lives Matter, given the repeated acts of racism towards the Black/African American community in 2020 and 2021. For instance, Krueger et al. (2021) investigated racial oppression, activism, and racial identity in Black/African Americans; the authors found that racial identity attitudes predicted participants' involvement in Black/African American activism. Overall, there may be notable differences in the relationships between SPA and ethnic identity for different racial/ethnic groups even when studying a sample of regular exercisers, due to indirect sociocultural variables such as systemic racism and the oppression of particular racial/ethnic groups that could affect the relationships between ethnic identity and acceptance or anxiety about one's own body.

Although there were race/ethnicity differences in correlations between SPA and ethnic identity, there were no mean differences found between racial/ethnic groups in SPA when examining solely ethnicity. This finding contradicts the limited SPA research that has been

conducted on SPA and race/ethnicity (e.g., Russell, 2002; Russell & Cox, 2003); the authors of these studies found that African American exercisers reported lower levels of SPA in comparison to White exercisers, when examining women and men. However, the current study recruited a larger, diverse sample across the United States. In other words, the samples of the previous studies (e.g., Russell, 2002; Russell & Cox, 2003) were recruited via convenience sampling at college universities all within the Midwestern region, thus limiting the generalizability of the results. Although these studies (e.g., Russell, 2002; Russell & Cox, 2003) found differing levels of SPA between groups, effect sizes were not reported, whereas the current study included effect sizes; however, any differences in SPA found between racial/ethnic groups were very small. The current study may have also removed some of the variance in SPA levels due to differences in exercise status given that the participants engaged in exercise for at least six months. Therefore, it could be that regular exerciser status may have influenced the lack of differences in SPA across racial/ethnic groups. It could be that the exercisers in the present study had similar levels of motivation or confidence to maintain exercise adherence, thus somehow contributing to the lack of differences in SPA. Although there were no mean differences in SPA between race/ethnicity groups of exercisers, the relationship between ethnicity and SPA is still unclear because of the differences found in relationship strength between ethnic identity and SPA; Black/African American exercisers having a moderate and negative relationship between ethnic identity and SPA may imply that, as a racial/ethnic group, they are satisfied with their bodies and not concerned with their physique being evaluated in exercise settings. Thus, Black/African American exercisers' strong ethnic identities may involve different body ideals that are not related to symptoms of SPA. In applied settings, sport and exercise psychology practitioners need to continue to develop multicultural competency in order to interpret how exercisers' ethnic

identities may influence their SPA and exercise behavior. Sport and exercise psychology practitioners can continue developing multicultural competency by attending continued education units, professional trainings focused on cultural competency, and by making conscious efforts to become more reflective of their own racial/ethnic identities and cultural backgrounds (see Quartiroli et al., 2020 for further discussion). These efforts will likely help practitioners sufficiently build rapport with diverse clients, better understand other cultures and races/ethnicities that they do not personally identify with, and how others' perceptions of their bodies affect activity patterns and choices.

A multiple regression tested the model fit of gender identity and ethnic identity as predictors for SPA. Although there was a significant, unique contribution from total ethnic identity and cisgender women towards SPA, they were very small. Ethnic identity is a variable that has not been investigated as a predictor of SPA in previous research. There may have been only a very small contribution from ethnic identity towards SPA due to the influence of a third variable, such as regular exercise. Specifically, long-term exercise (for at least six months) may have been an indirect, third variable that explained why there were no differences found. Alternatively, the race/ethnicity categories may have been too broad in the current study. For example, the race/ethnicity category of Asian/Asian American could be too broad for individuals who identify within that group (Okazaki & Saw, 2011). Asian individuals and Asian Americans may differ greatly in experiences, particularly with ethnic identity and different Asian American cultures (e.g., Korean, Japanese, and Chinese Americans) may have differences in ethnic identity yet were analyzed in the same category. To further explore ethnic identity as a predictor of SPA, researchers may consider separating analyses further for race/ethnicity or comparing more similar race/ethnicity groups. There could also be possible mediating factors such as social

support, which includes utilizing friends, peers, and family to help face adverse or difficult life events, such as exercising for the first time or maintaining an exercise routine (Smith et al., 2017). An example of social support relevant to SPA in exercise settings could be companionship support (e.g., exercise partners), and this support could help alleviate symptoms of SPA given that the exerciser is not exercising alone. Overall, it is unclear if confounding variables in the study could have taken place, in relation to ethnic identity, SPA, and exercise.

In contrast to the literature, there were no gender differences in mean scores of SPA and the group of cisgender women attributed to only a small variance in SPA scores. Social physique anxiety researchers have primarily investigated SPA in men and women (as measured on a binary scale), and a consistent finding has been that SPA rates are higher in women (e.g., Chu et al., 2008; Frederick & Morrison, 1996; McLester et al., 2018; Portman et al., 2018; Rothberger et al., 2015). The current study had a larger sample of men (69.6%) than women (28.8%), in comparison to previous exercise studies (e.g., McLester et al., 2018; Rothberger et al., 2015; Strong et al., 2006), and similar to other studies, in the present sample only cisgender women uniquely predicted SPA, but the predictive value was an inconsequential size. It is often assumed that women aim to achieve thinness ideals, whereas men aim to achieve muscularity (Ferguson, 2013), further contributing to developed gender stereotypes and the idea that men and women have distinct differences in physique ideals. Overall, there were no gender differences found in SPA and one gender identity (cisgender women) only accounted for less than 1% of the predictive quality of SPA, therefore researchers and practitioners in exercise psychology should not assume that cisgender women exhibit higher levels of SPA in comparison to cisgender men or other gender groups that have not been investigated in relation to SPA. A strength of the current study's sample was that it included a third gender group of transgender and non-binary

identifying exercisers, however future researchers may need to specifically target non-cisgender individual recruitment to increase their sample sizes. Regardless, the present study aimed to overcome the potential influence of gender stereotyping related to SPA and exercise and attempted to be inclusive of more gender identities. Further, practitioners could aim to be more gender neutral in body image assessment to better accommodate all gender groups who could be exhibiting body image concerns, including the use of gender-neutral language (e.g., gender pronouns). These suggestions may in turn reduce gender stereotyping and stigmas. Social physique anxiety researchers have not fully accounted for the influence of gender by focusing primarily on cisgender groups. As a result, researchers are not seeing the full picture of how SPA prevalence occurs along the full gender spectrum.

Another exploratory finding from the present study included differences in ethnic identity found between racial/ethnic groups of exercisers irrespective of SPA. Specifically, Asian/Asian American exercisers reported lower levels of ethnic identity in comparison to other racial/ethnic exerciser groups. If the racial/ethnic groups had not been analyzed separately, these differences would not have been noted. Given that the sample was comprised of solely exercisers, exercise could play a role in the differing levels of ethnic identity across racial/ethnic groups. Ethnic identity is a term to describe a person's sense of belonging or identification within their respective racial/ethnic group (Phinney, 1992), however, exercise may be contributing differently to an exerciser's ethnic identity due to their adoption and regularity of exercise. For example, Smalley et al. (2016) found that higher ethnic identity was positively associated with higher engagement in exercise, although the sample was comprised of solely African American women. Further examination of racial/ethnic groups of exercisers may be needed to explore the relationship between exercise and ethnic identity. Using ethnic identity in future studies when

examining constructs such as SPA or within an exercise sample could give researchers clearer insight regarding exercisers' experiences.

The current study examined regular exercisers and there were similar mean scores of SPA across the total sample. The current findings contradict previous findings on the relationship between exercise behavior and SPA (Berry & Howe, 2004; Krane et al., 2001; McLester et al., 2018; Portman et al., 2018; Rothberger et al., 2015). Further exploration of the relationship between *regular* exercise and SPA may be useful for future studies in exercise psychology. McAuley et al. (2002) examined the relationship between exercise adherence and SPA and found that exercisers exhibited lower levels of SPA ($M = 21.99$; $SE = 0.54$) after six months of exercise programming, compared to when they started ($M = 23.74$; $SE = 0.54$); however, the effect size of that change in SPA was not reported in their study. Although not tested statistically, the average SPA scores in McAuley et al. (2002)'s exercisers at the end of their study potentially contrast the average SPA scores in the current study ($M = 34.64$; $SE = 0.12$), even though the months of reported exercise were the same. Differences in or variety of exercise modality and settings could have contributed to these contrasting SPA scores; McAuley et al. (2002)'s study was a randomized controlled trial, and exercisers' aerobic capacity was measured while they exercised on a treadmill. The current study was exploratory, and exercisers could self-select exercise modalities and settings; this variety in modalities and settings could have resulted in a higher mean SPA score in the sample. For instance, different modalities involve varying levels of skill or physical capabilities, and these differences could potentially contribute to one's physique concerns or perceived evaluation during an activity. Alternatively, the McAuley et al. (2002) study could have been comprised of *new* regular exercisers, and the current study could have included exercisers who had been adhering to exercise for years. Further, 12% of the sample in

the McAuley et al. (2002) study did not complete the six-month exercise program, and these exercisers could have been the ones with higher SPA. The present study's sample could have been exercising for much longer than six months, whereas the participants in the McAuley et al. (2002) study may have experienced higher SPA once they exercised in real-world settings beyond an experimental environment. Overall, regularity of exercise could alleviate symptoms of SPA in exercisers, and maintenance of exercise may be negatively correlated with SPA possibly influenced by increased confidence or sense of mastery, increased levels of motivation, or a supportive and inclusive exercise environment. However, duration of exercise status was not measured in the current study. In reference to Festinger's (1954) social comparison theory, exercisers may make comparisons to others (i.e., others' physiques) in order to interpret how they fit into the exercise domain. Exercisers with higher levels of SPA would be more likely to make physique comparisons, however, *regular* exercisers may already feel as though they fit in the exercise domain, thus decreasing the need to make physique comparisons, therefore reducing the risk for higher levels of SPA. Alternatively, it could be that only exercisers with lower levels of SPA adhere to exercise long-term, because they feel that they fit in within exercise settings. The present study focused on SPA in regular exercisers, particularly those who had exercised regularly for at least six months. Regular exercise may influence SPA, however, the length of time one has been a regular exerciser has not been investigated in SPA research. Overall, exercise, and more specifically, regular exercise, could be playing a significant role in the prevalence of SPA.

Further exploration of exercise motivation may also be important in the study of SPA, particularly if exercisers with SPA are exercising for autonomous reasons (e.g., increased energy, decreased stress, alignment of values and goals), or controlled reasons (e.g., social approval,

body fat reduction), when accounting for several race/ethnicity and gender groups (Deci & Ryan, 2000). Exercising for either appearance or weight management, for example, has been positively associated with SPA for men and women (Strong et al., 2006). Thus, motivations for exercise may be a new area of exploration for SPA research. To investigate exercise and motivation, Teixeira et al. (2012) reviewed 66 studies and found a consistent positive relationship between autonomous motivation and exercise, and intrinsic motivation (e.g., enjoyment) was a consistent predictor of long-term exercise adherence. The exercisers in the present study may have been exercising for autonomous reasons, thus autonomous motivation could have been an indirect variable that may have contributed to the average scores of SPA. Another influence on SPA in the current study could be the satisfaction of the exercisers' three basic psychological needs (autonomy, competence, relatedness; Deci & Ryan, 2000). Satisfaction of the three basic psychological needs likely fosters positive outcomes, one being autonomous motivation and general well-being (Deci & Ryan, 2000), which could reduce SPA. The complexity of the relationship between SPA and exercise motivation is evident, given that SPA has been positively related to reduced exercise motivation (Eklund & Crawford, 1994; McAuley et al., 1995) as well as excessive exercise (e.g., Frederick & Morrison, 1996). Overall, it is unclear if SPA is a barrier or motivator for exercise.

Although this study addressed several gaps in SPA research, there are limitations to be considered. First, there was a lower Cronbach's alpha (.59) for the SPAS than other studies have reported (e.g., Focht & Hausenblaus, 2004; McLester et al., 2018). It is unclear why there was less internal consistency for this scale, however, given that the SPAS was created in 1989 (Hart et al., 1989), it may no longer accurately assess SPA decades later. Specifically, the influence of cell phones, video, and social media use could be contributing to exercisers' experiences in

current times, such as one's comfort or satisfaction of seeing themselves on camera or in the mirror, which could affect scores on certain items of the SPAS (e.g., "When I look in the mirror I feel good about my physique/figure"). A new SPA scale may be needed to accommodate additional gender groups, such as men, transgender, and non-binary groups. For instance, an individual who is transitioning may not identify with the items (e.g., "I am comfortable with the appearance of my physique/figure") on the SPAS in the same way as someone who identifies as cisgender, therefore the SPAS may not be valid for their experiences with SPA. Alternatively, the SPAS may not have internal consistency for studies with diverse age ranges, such as the current study, given higher Cronbach's alphas of .90 (McCreary & Saucier, 2009), .91 (McLester et al., 2018), and .92 (Portman et al., 2018) have been reported specifically in college student samples. Second, the study was a cross-sectional design, therefore, the researchers cannot determine causality between the variables (e.g., SPA, ethnic identity). Third, some responses had to be excluded from analysis due to possible misinterpretation of the directions from the Godin Leisure Time Exercise Questionnaire; the excluded responses included unusually large numbers for weekly exercise sessions per week (e.g., 150, 400). A fourth potential limitation could include the timing of participant recruitment, given the study took place during a global pandemic when gyms and other fitness facilities experienced closures or shutdowns. Exercisers may have altered their exercise patterns and settings greatly due to the health crisis and during a time of the rise of racial social justice movements.

Future researchers investigating SPA should continue to explore more distinct and personalized variables regarding one's racial/ethnic background, such as ethnic identity, while also examining additional gender groups beyond cisgender women and men. Examining ethnic identity further in SPA research could also determine if ethnic identity could be a protective

factor against SPA, similar to how it has been for thin-ideal internalization and weight concerns (Warren et al., 2005). In order to grasp the influence of race/ethnicity on a person's SPA, ethnic identity may be a more appropriate variable to analyze rather than ethnicity. Future SPA studies on exercisers could be improved by obtaining larger, more nationally representative samples, by including several gender and race/ethnicity groups. Researchers may consider examining exercisers in relation to different exercise settings or modalities, to investigate whether certain exercise settings or modalities are positively or negatively associated with SPA in a diverse sample of exercisers. Exercise frequency may also be another important variable to consider, specifically whether more or less exercise is correlated with high or low levels of SPA. These suggestions for future SPA research may provide further clarity regarding the role exercise plays in the relationship between SPA and perhaps ethnic identity. Practitioners should continue to explore how exercisers from various racial/ethnic backgrounds and ethnic identities experience physique-related concerns, in order to properly and effectively deliver interventions to clients in a personalized manner. Practitioners may then have more success in assessing diverse exercisers' thoughts, feelings and behaviors surrounding their body image concerns, all of which may look different depending on exercisers' racial/ethnic identification. Finally, knowledge of these relationships (SPA, race/ethnicity, ethnic identity) may help educators better tailor their information in regard to individual demographics that may be at high risk for SPA.

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Table 1

Correlations Between Social Physique Anxiety and Ethnic Identity When Separated by Race/Ethnicity Identification

Race/Ethnicity	<i>n</i>	<i>r_s</i>
American Indian/Alaskan Native	126	.088
Native Hawaiian/Pacific Islander	23	.084
Asian/Asian American	60	.023
Hispanic/Latino/Latina/Latinx	61	-.092
White/European American	1274	-.093**
Black/African American	52	-.309**
Two Races/Ethnicities	113	.061
More Than Two Races/Ethnicities	49	.159
Total Sample	1765	-.063**

Note. ** $p < .001$.

Table 2*Means and Standard Deviations of Social Physique Anxiety Scores Across Race/Ethnicity**Groups*

Race/Ethnicity	<i>n</i>	<i>M</i>	<i>SD</i>
American Indian/Alaskan Native	126	35.56	4.57
Native Hawaiian/Pacific Islander	23	33.61	6.12
Asian/Asian American	60	33.88	5.10
Hispanic/Latino/Latina/Latinx	61	34.43	7.45
White/European American	1274	34.57	4.88
Black/African American	52	34.90	6.32
Two Races/Ethnicities	113	35.42	4.77
More Than Two Races/Ethnicities	49	34.82	4.67
Total Sample	1758	34.67	5.03

Table 3*Race/Ethnicity and Gender Identity Crosstabulation*

		Gender Identity									
		Men	Women	Prefer not to state	Non-binary	Trans women	Two-spirit	Gender not listed	Gender-queer/fluid	Trans men	Total non-cisgender
Race/Ethnicity	White/European American	902	349	15	2	2	2	1	1	0	23
	American Indian/Alaskan Native	87	39	0	0	0	0	0	0	0	0
	Two Races/Ethnicities	66	45	0	0	1	0	0	0	1	2
	Hispanic/Latino/Latina/Latinx	36	25	0	0	0	0	0	0	0	0
	Asian/Asian American	43	17	0	0	0	0	0	0	0	0
	Black/African American	36	16	0	0	0	0	0	0	0	0
	More Than Two Races/Ethnicities	40	8	0	1	0	0	0	0	0	1
	Native Hawaiian/Pacific Islander	15	8	0	0	0	0	0	0	0	0
	Arab/Middle Eastern	2	2	0	0	0	0	0	0	0	0
	Prefer not to state	2	0	1	0	0	0	0	0	0	1
	Total	1229	509	16	3	3	2	1	1	1	27

Appendix A

Journal of Applied Sport Psychology Submission Guidelines

All parts of the manuscript should be typewritten, double-spaced, with margins of at least one inch on all sides. Articles will be no more than 30 double-spaced pages in length for quantitative submissions and 35 for qualitative submission (including tables, figures and references). They should also include a title page, a 250-word abstract, 50-word lay summary, up to three implications for practice and complete references. Lay summaries should be included after the abstract and key words. Insert a line space after the abstract, and then include a heading (Lay Summary:) and then the lay summary text. Implications for Practice should be included after the lay summary. Insert a line space after the lay summary, and then include a heading (Implications for Practice:) and then finally the text in bullet point format. The title of the manuscript should reappear on the first page of the text. Authors should also supply a shortened version of the title suitable for the running head, not exceeding 50 character spaces. The discussion section of the manuscript should provide suitable attention to the applied implications arising from the findings of the work. Research notes with novel or interesting descriptive quantitative or qualitative data (15 pages including references, tables, figures, 100-word abstract) are welcomed submissions

Manuscripts, including tables, figures and references, should be prepared in accordance with the Publication Manual of the American Psychology Association (Seventh Edition, 2020). Manuscripts which do not adhere to these guidelines will be returned to the authors on submission.

Authors are to avoid the use of sexist, racist, and otherwise offensive language. Where relevant the cultural characteristics of any sample population studied should be described in the participant section of the method. Manuscript copies should be clear and legible and all figures must be camera ready.

General guidance for the preparation and successful submission of academic work in sport and exercise psychology can be found [here](#)

Full guidelines can be found using the following link:

<https://www.tandfonline.com/action/authorSubmission?journalCode=uasp20&page=instructions>

Appendix B

Western Washington University Internal Review Board Notification

WWU Research Compliance

To: Kelly Zwicker

Cc: Linda Keeler

Subject: Application #4018EX20 Exemption Granted/Approved

Hi Kelly,

The Western Washington University (WWU) Institutional Review Board (IRB) designee determined that application #4018EX20 “Relationships Between Social Physique Anxiety, Ethnic Identity, and Gender Identity in Exercisers” meets the requirements outlined in §45 CFR 46 and WWU institutional procedures to receive the following exemption determination:

Exempt Category 2

This determination means that your research is valid indefinitely, as long as the nature of the research activity remains the same. You may begin recruitment and data collection. After 6 years, according to the University’s retention schedule, this exemption file will be deleted. After this point, you will no longer be able to make modifications to this protocol.

This exemption is given under the following conditions:

1. The research will be conducted only according to the protocol.
2. The research will be conducted in accordance with the ethical principles of Justice, Beneficence, and Respect for Persons, as described in the Belmont Report, as well as with federal regulations and University policy and procedure.
3. PIs, Faculty Advisors, PI Proxies, and any individual interacting or intervening with human subjects or their identifiable data must be appropriately trained in human research subject protections ([CITI Basic Social/Behavioral Research – Basic/Refresher course](#)), research methods, and responsible conduct of research **prior to** initiating research activity.
4. The Principal Investigator will retain documentation of all past and present personnel, including documentation of their training(s).
5. The Principal Investigator will ensure that all personnel training(s) remain(s) up to date.
6. IRB approval will be obtained **prior to making any modifications** that affect the research study’s eligibility for this exemption category or fundamentally change the research. This includes changes to the Principal Investigator (PI), PI Proxy, or Faculty Advisor (if applicable), subject population, recruitment methods, compensation amounts or methods, consent materials or procedures, or changes in study materials that deviate from the approved scope. The process for requesting modifications is described on our [Continuing Research](#) webpage.
7. The following types of changes can be made without submitting a modification: Adding or removing research personnel other than the PI, PI Proxy, or Faculty Advisor (if

8. applicable), edits in spelling, punctuation, and grammar on study materials (not including consent forms), minor wording changes to study materials (not including consent forms) that do not change the overall content and resulting comprehension, and adding or editing questions in questionnaires that are within the scope of the questions currently approved.
9. All research records (the application determination packet, correspondence with the IRB, any other IRB- related determinations, signed consent forms, and documentation of research personnel trainings in human research subject protections) will be maintained in accordance with [WWU's guidelines for document retention](#). **Keep this packet and drafts of your materials!**
10. The IRB will be promptly informed of any issues that arise during the conduct of the research, such as adverse events, unanticipated problems, protocol deviations, or any issue that may increase the risk to research participants.

Thank you for your attention to these details. If you have questions at any point, please review our website (www.wwu.edu/compliance) or contact a Research Compliance Officer.

Sincerely,

Stephanie Richey
Research Compliance Officer
Research & Sponsored Programs|Western Washington University
www.wwu.edu/compliance
compliance@wwu.edu
360.650.2146

Appendix C

Inclusion Criteria

These questions help us determine whether you are eligible to participate in this research study. Your responses will be kept as part of the research.

Regular exercise is planned, structured, and repetitive, and individuals often engage in exercise to improve their level of fitness (e.g., endurance, strength) during leisure time. Regular exercise has been defined in a number of different ways:

- 30 minutes of moderate intensity (e.g., brisk walking, riding a bike) physical activity for at least 3 days per week, for at least 6 months.
- 150 minutes of exercise per week, with moderate intensity
- 20 minutes of vigorous intensity (e.g., fast walking, running, competitive sport activity) exercise 3 days a week

1. According to one or a combination of these definitions, have you been a regular exerciser for at least six months?
 - a. Yes
 - b. No (automatically sent to thank you page)
2. Are you at least 18 years old?
 - a. Yes
 - b. No (automatically sent to thank you page)
3. Are you a competitive sport athlete (e.g., member of an organized, competitive sport environment)?
 - a. Yes (automatically sent to thank you page)
 - b. No

Appendix D

Consent Form

Introduction: We are asking you to be in a research study. Participation for this study is voluntary. The purpose of this form is to provide you the information you will need to decide whether to participate in the study. Please read the following form carefully and email questions to the primary investigator (Kelly Zwicker: zwickek@wwu.edu) about anything that is unclear before you begin the survey. This process is called the “informed consent.”

Purpose and Benefit: The purpose of this study is to better understand exercisers’ perceptions of their physique and the relationship of those perceptions to one’s gender and ethnic/racial identity. There are no direct personal benefits from completing this study; however, your participation can further knowledge in the field of exercise psychology about exercisers’ perceptions.

Summary of your Participation: If you choose to participate in this study, you will complete an online survey lasting approximately 5-10 minutes. You can stop participation at any time. Two example questions from the surveys are: “I am comfortable with the appearance of my physique or figure” and “I have a strong sense of belonging to my own ethnic group.”

Risks

While there are no known or expected risks to participating, it is possible that some questions could cause you some discomfort.

Data Privacy and Protections

Your data (survey responses) will not be linked with any identifying information about you. For example, we will not ask for your name during your participation. Your data will be password protected and no IP addresses will be tracked.

Withdrawal

You can leave the survey at any time by closing your browser. Any data you entered will be kept.

Incentive

At the end of the survey, you will be directed to a separate survey where you have the option to enter your email address to be included in a raffle for one of ten \$25 Amazon gift cards. Your email address will not be linked to your survey responses.

Questions and Contact Information

The principal researcher of this study is Kelly Zwicker, a Master’s student in Sport and Exercise Psychology at Western Washington University. She is conducting this study under the supervision of Dr. Linda Keeler. Any questions you have about this study or your participation can be directed to Kelly Zwicker (zwickek@wwu.edu) or Dr. Keeler (keelerl2@wwu.edu).

If you want a copy of this consent form, you can print this page or contact Kelly.

The Institutional Review Board (IRB) at Western Washington University has approved this study. If you have any questions about your rights as a research participant, you can contact the Western Washington University Office of Research and Sponsored Programs (RSP) at compliance@wwu.edu (360) 650- 2146. If during or after participation in this study you suffer from any adverse effects as a result of participation, please notify Kelly or RSP.

By clicking on the box below to ‘submit’ and continue the survey, you indicate that you have read the above description, are 18 years of age or older, and agree to participate in this study.

Appendix E

Social Physique Anxiety Scale

Directions: The following questionnaire contains statements concerning your body physique or figure. By physique or figure, we mean your body's form and structure; specifically, body fat, muscular tone, and general body proportions.

Read each item carefully and indicate how characteristic it is of you according to the following scale.

1 Not at all characteristic of me	2 Slightly characteristic of me	3 Moderately characteristic of me	4 Very characteristic of me	5 Extremely characteristic of me
--	--	--	--------------------------------------	---

1. I am comfortable with the appearance of my physique/figure.
2. I would never worry about wearing clothes that might make me look too thin or overweight.
3. I wish I wasn't so up-tight about my physique/figure.
4. There are times when I am bothered by thoughts that other people are evaluating my weight or muscular development negatively.
5. When I look in the mirror I feel good about my physique/figure.
6. Unattractive features of my physique/figure make me nervous in certain social settings
7. In the presence of others, I feel apprehensive about my physique/figure.
8. I am comfortable with how fit my body appears to others.
9. It would make me uncomfortable to know others were evaluating my physique/figure.
10. When it comes to displaying my physique/figure to others, I am a shy person.
11. I usually feel relaxed when it is obvious that others are looking at my physique/figure.
12. When in a bathing suit, I often feel nervous about the shape of my body.

Appendix F

Multigroup Ethnic Identity Measure – Revised

Please indicate the degree of which you agree or disagree with the following statements.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

1. I have spent time trying to find out more about my ethnic group, such as its history, traditions, and customs.
2. I have a strong sense of belonging to my own ethnic group.
3. I understand pretty well what my ethnic group membership means to me.
4. I have often done things that will help me understand my ethnic background better.
5. I have often talked to other people in order to learn more about my ethnic group.
6. I feel a strong attachment towards my own ethnic group.

Appendix G

Godin Leisure-Time Exercise Questionnaire

Considering a 7-day period (a week), how many times on the average do you do the following kinds of exercise for more than 15 minutes during your free time (type in each box the appropriate number, please do not type in ranges of numbers).

Times per week

a) Strenuous exercise (heart beats rapidly)

(i.e., running, jogging, hockey, football, soccer, squash, basketball, cross country, skiing, judo, roller skating, vigorous swimming, vigorous long-distance bicycling)

b) Moderate exercise (not exhausting)

(i.e., fast walking, baseball, tennis, easy bicycling, volleyball, badminton, easy swimming, alpine skiing, popular and folk dancing)

c) Mild exercise (minimal effort)

(i.e., yoga, archery, fishing from riverbank, bowling, horseshoes, golf, snowmobiling, easy walking).

Appendix H

Demographic Questions

1. What is your current age?
2. What is your gender identity?
 - a. Man
 - b. Woman
 - c. Agender
 - d. Genderqueer/fluid
 - e. Nonbinary
 - f. Trans man
 - g. Trans woman
 - h. Two-spirit
 - i. A gender not listed here
 - (a) Please explain:
 - j. Prefer not to state
3. What is your primary setting for exercise during a typical week? Check all that apply.
 - a. Alone (without a partner/group) in a private setting
 - b. Alone (without a partner/group) in a public setting
 - c. With 1-2 partner(s) in a private setting
 - d. With 1-2 partners(s) in a public setting
 - e. With a group in a private setting
 - f. With a group in a public setting
 - g. Other: _____
4. During an average week, what are the top 3 exercise types that you engage in the most (leave spaces blank if you engage in less than 3 types)?
5. Which race/ethnicity do you identify with? Check all that apply.
 - a. White/European American
 - b. American Indian/Alaskan Native
 - c. Asian/ Asian American
 - d. Black/African American
 - e. Hispanic/Latino/Latina/Latinx
 - f. Native Hawaiian/Pacific Islander
 - g. Arab/Middle Eastern
 - h. A race/ethnicity not listed here
 - (a) Please explain:
 - i. Prefer not to state

Appendix I

Contact Email

My name is Kelly Zwicker and I am a graduate student in sport and exercise psychology at Western Washington University. I am conducting a study for my master's thesis on exercisers' gender, ethnicity, and perceptions of one's physique. For my study, I am recruiting adult exercisers to complete a brief online survey.

I would appreciate it if you would consider forwarding this email to the adult exercisers with whom you are in contact with either via email or social media.

Here is some other key information about the study:

- Exercisers who are 18 years or older and exercise on a regular basis will qualify for the study
- Participation in the study is completely voluntary and your identifying information will not be connected to your responses
- The online survey will take approximately 5-10 minutes
- After completing the survey, participants have the option to enter a raffle for one of ten, \$25 electronic Amazon gift cards.

If you are interested in the results of this study, you are also invited to email me your contact information and a summary will be sent to you after the study's completion. If you have any questions or concerns, please feel free to reach out to me or my advisor, Dr. Linda Keeler (keelerl2@wwu.edu). I appreciate your time!

This survey is intended for United States participants. Here is a link to the study: https://wwu.az1.qualtrics.com/jfe/form/SV_6EDnLgdsrZWf1DT

Sincerely,

Kelly Zwicker

zwickek@wwu.edu

Appendix J
Social Media Text

Looking for exercisers to participate in a brief research survey for a master's thesis. I am Kelly Zwicker, a graduate student in sport and exercise psychology at Western Washington University, and I am conducting a study on exercisers' gender, ethnicity, and perceptions of one's physique. Your participation will be voluntary and anonymous, meaning your responses will not be identifiable. After the survey, you have the option to enter a raffle for one of ten, \$25 Amazon gift cards. Please consider participating and sharing with others. This survey is intended for United States participants. Here is a link to my study:
https://www.az1.qualtrics.com/jfe/form/SV_6EDnLgdsrZWf1DT