The Effects of Social Comparison in Athletes: A Cross-Cultural Analysis of Body Image and Motivation among Indian and American Competitive Swimmers

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Abstract

The present study examined the effects of social comparison among competitive swimmers, while also examining cross-cultural differences in body image and motivation between Indian and American swimmers. Participants included 33 (39.3%) Indian National Team swimmers and 51 (60.7%) NCAA swimmers. Participants were asked to indicate the types of swimmers to whom they compared themselves, upon which the direction of the comparison as well as target similarity were assessed. Body image was assessed using the Contextual Body Image Questionnaire for Athletes (CBIQA), and motivation was assessed using the Achievement Goals Questionnaire for Sport (AGQ-S). It was found that a majority of participants preferred to compare themselves to similar rather than dissimilar others. However, those who compared themselves to dissimilar others showed higher levels of body dissatisfaction, were more likely to exhibit a desire to avoid performing badly, and show demotivation upon failing to perform well, whereas those who compared themselves to similar others showed lower levels of body dissatisfaction, exhibited a desire to master all aspects of their performance and did not show demotivation upon failing to perform well. It was also found that American swimmers tended to be significantly more dissatisfied with their bodies than Indian swimmers. Males tended to be significantly more dissatisfied with their bodies within the context of sport than in daily life, whereas no contextual differences were found in females. No cultural differences in motivation were found. This study therefore highlights the importance of cultural and societal factors while examining athletes' susceptibility to body dissatisfaction. While this study contributes to our understanding of the factors that increase the susceptibility of disordered eating in athletes, an equal emphasis must be placed on educating the athletes themselves in order to reduce this susceptibility.

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The Effects of Social Comparison in Athletes: A Cross-Cultural Analysis of Body Image and Motivation among Indian and American Competitive Swimmers

I was born and raised in Bangalore, India, where I began my competitive swimming journey at eight years old. At the age of 14, after having competed nationally for a few years, I was given the opportunity to travel to the United States for the first time. I was truly amazed at how genuinely passionate the coaches and swimmers were about the sport, and how much I was able to learn during my short three-month stay. I saw how much the swimmers around me displayed their love of competition by cheering for their teammates behind the blocks and shaking their competitors' hand after a race regardless of whether they had won. Therefore, through their actions, these swimmers taught me that one could love to compete while also being compassionate to their competitors, a concept that seemed unfathomable while I competed in India. One of the most valuable lessons I learnt over the course of this three-month period in the United States was that the sport of swimming is so much more enriching when you do it for something much bigger than just yourself.

A few years after this momentous trip to the USA, I was nearing the end of my high school education and was faced with the tough decision of choosing to either pursue my education or my sport if I were to continue living in India. Since this was a point where I was at a peak in my swimming career and I had just started to find my passion for psychology, I knew that neither of these options were ones that I wanted to give up. Therefore, after looking into all the options that enabled me to simultaneously pursue swimming while also continuing my education, I made the decision to pursue a collegiate swimming career at Drew University, under the NCAA system in the United States.

After spending 14 years competing for India and four competing for Drew University, I have noticed many similarities and differences in the culture of the sport between the two countries. From personal experience, I have noticed that it is very common in both countries for a swimmer to compare themselves to other swimmers, both in the pool while racing, as well as outside the pool in daily life. What is also similar between the two countries is the tendency to compare oneself to another swimmer primarily on the basis of physical appearance. As a result, it is possible for one to obtain information about either their own performance or their own physical appearance. However, there is a marked difference between the two countries in terms of the number of opportunities that swimmers have to compare themselves to different swimmers, as well as the effects that those comparisons could potentially have on one's body image and motivation.

Firstly, the number of opportunities that a swimmer is given to compete varies greatly between the two countries; in India, swimmers compete as few as two times a year, whereas in America, swimmers compete at least once every two weeks. Additionally, the calibre of competition varies greatly between the two countries; at the National level, Indian swimmers predominantly compete against swimmers who are similar to oneself in terms of speed. However, swimmers who are a part of the Indian National Team are often given the opportunity to represent their country internationally at the World stage, which makes it so that Indians who compete at the International level do so against those that are both similar as well as drastically different to themselves in terms of speed. As a result, although the opportunities that an Indian swimmer is given to compete are very few, there is a lot of variability in the similarity between oneself and the swimmers to whom they can compare themselves.

On the contrary, NCAA swimming in the United States operates in a manner where one competes with swimmers who are largely similar to themselves in terms of speed. Additionally, USA National Team members often earn their spots on International rosters upon meeting certain time standards, ensuring that they compete with swimmers that are similar to themselves in terms of speed. As a result, American swimmers predominantly tend to compete with swimmers who are similar to themselves.

Therefore, the opportunity for social comparisons is much higher in America than it is in India, but the variability (in terms of similarity to oneself) of the people to whom one can compare themselves remains relatively low. In India, on the other hand, despite competing on a relatively infrequent basis, swimmers compete against swimmers who are both similar and dissimilar to themselves, which significantly increases the variability in terms of the similarity between oneself and the swimmers to whom they can compare themselves. This led me to wonder whether similarity plays a role in the selection of whom one compares themselves to, and whether that comparison influences a swimmer's motivation to achieve their goals. In other words, is there any difference in motivation based not only on the type of swimmer one compares themselves to, but how similar that swimmer is to oneself? Would a swimmer who compares themselves to an Olympic swimmer who is very different from themselves be more or less motivated than a swimmer who compares themselves to a competitor that is very similar to themselves?

Secondly, what was markedly different between my experiences living in both countries was the emphasis placed on physical appearance (and especially thinness) as being markers of one's attractiveness; in the United States, I found that being thin was regarded much more highly and was considered much more attractive than it was in India. In a similar vein, I found that

American swimmers tended to vocalize their concerns about their own bodies much more than Indian swimmers did[1]. Consequently, this led me to wonder whether swimmers from the two countries actually experienced different levels of body dissatisfaction. More specifically, I wanted to explore whether the differences between the two countries in terms of the emphasis placed on physical attributes, as well the differences in the opportunities for social comparison would lead to differences in the way swimmers from the two countries experienced body dissatisfaction. Therefore, over the course of this paper, I aim to explore how social comparison affects body image and motivation in swimmers, and whether body image and motivation differ cross-culturally between Indian and American swimmers.

[1]Disclaimer: I base these claims only on my experiences as an undergraduate college swimmer at a small liberal arts University. My intent is not to generalize these claims as being countrywide.

People have an inherent need to know themselves and maintain a stable view of their abilities, which is often accomplished by comparing oneself to other people (Corcoran, Crusius & Mussweiler, 2011; Festinger, 1954). According to Festinger (1954), it is a combination of one's beliefs about their current state of existence along with an adequate understanding of their capabilities that is the driving force behind their behaviors. However, this often cannot be accomplished with reference to the physical world alone; for instance, one can judge the time it takes to run a certain distance, but this does not produce an accurate evaluation of the person's ability on its own (Festinger, 1954). Therefore, people often seek and are faced with information about others' opinions and abilities, which they use to form an accurate evaluation of their own opinion and abilities (Corcoran et al., 2011; Festinger, 1954) This process, more formally defined as social comparison, involves the determination of one's self-worth and self efficacy through the comparison of their own traits, behaviors, strengths and weaknesses to those of others (Festinger, 1954; Corcoran, et al., 2011).

However, the selection of a comparison target is in no way a straightforward process, and plays a significant role in influencing the accuracy of one's self-evaluations. The two primary factors involved in the selection of a target are the similarity between oneself and the target with respect to the attributes related to the domain of the comparison, and the goals of the comparison itself (Corcoran et al., 2011; Festinger, 1954; Suls, Gastorf & Lawhon, 1978; Suls, Martin & Wheeler, 2002). It has been shown that the likelihood of an accurate comparison decreases as the discrepancy between one's ability and that of another person increases (Festinger, 1954). For instance, if the goal of a social comparison is to form an accurate evaluation of one's abilities, people tend to compare themselves to those that are similar to themselves in terms of performance, as well as related attributes such as age and sex. On the other hand, if a person

compares their abilities to someone who is much older or is of a different sex, any differences in performance tend to merely be attributed to differences in age or sex, rendering the comparison inaccurate (Corcoran et al., 2011; Suls et al., 1978).

Furthermore, social comparison is a multi-directional process which is influenced by one's motives for engaging in the comparison. For instance, people tend to engage in downward social comparisons (which involve a comparison between oneself and someone who is worse-off) in order to maintain a positive self-view, whereas they tend to engage in upward social comparisons (which involve a comparison between oneself and someone who is better-off) when their motive is self-improvement (Corcoran et al., 2011; Suls, Martin & Wheeler, 2002; Lockwood & Kunda, 1997). Additionally, social comparisons can also be temporal in the sense that they occur between one's current and past selves, in order to evaluate progress or regression over time (Corcoran et al., 2011; Zell & Alicke, 2009)

Sport, in particular, is a domain where social comparisons are especially prevalent. Owing to the inherently competitive nature and the heightened importance of relative standings in sport, athletes tend to make social comparisons in order to evaluate both their physical appearance (henceforth referred to as appearance-focused social comparisons) as well as their athletic ability (henceforth referred to as performance-focused social comparisons) (deBruin, Oudejans, Bakker & Woertman, 2011; Leahey, Crowther & Mickelson, 2007; Milligan & Pritchard, 2006; Pila, Stamris, Castonguay & Sabiston, 2014). Appearance-focused social comparisons are made solely to obtain an evaluation of one's external appearance, with a predominant focus on physical attributes such as one's body (Leahey, Crowther & Mickelson, 2007; Myers & Crowther, 2009; Jones, 2001). One's body image is therefore significantly influenced by the direction of the comparison, along with the similarity between oneself and the

person to whom they are comparing themselves (henceforth referred to as the "target") (deBruin et al., 2011; Engeln-Maddox, 2005; Jones, 2001; Leahey et al., 2007; Pila et al., 2014).

For instance, studies have shown that upward social comparisons that are appearance-focused negatively impact body image, and are often predictive of eating disorders (Blechert, Nickert, Caffier & Tuschen-Caffier, 2009; Engeln-Maddox, 2005; Pila et al., 2014; Myers & Crowther, 2009). More specifically among athletes, it has been shown that comparisons to superior targets lead to feelings of envy towards the target, as well as feelings of imperfection towards one's own body (Pila et al., 2014). Furthermore, female athletes with eating disorders tend to be highly dissatisfied with their bodies and view others' bodies more positively and their own bodies negatively, but also tend to think that others view their own bodies negatively (deBruin et al., 2011).

While it is known that the inherently socially comparative nature of sport can lead to body dissatisfaction in athletes, there are several factors that influence exactly how this dissatisfaction is experienced and who experiences it. For instance, a factor that influences body dissatisfaction in athletes is the different body types to which athletes are both exposed and expected to adhere based on the type of sport they compete in (deBruin et al., 2011; Milligan & Pritchard, 2006; Russell, 2004; Reinking & Alexander, 2005). Athletes in leanness-focused sports (which are sports that emphasize lean body types, such as gymnastics, swimming and running) have been shown to experience body dissatisfaction differently from athletes in non-leanness focused sports (such as weightlifting, basketball and soccer) (Smolak, Murnen & Ruble, 2000; Milligan & Pritchard, 2006).

Furthermore, gender plays a prominent role in determining how athletes from different types of sports experience body dissatisfaction (Milligan & Pritchard, 2006; Kong & Harris,

2015; deBruin et al., 2011; Reinking & Alexander, 2005). It has been shown that females from leanness-focused sports are at a greater risk for disordered eating and body dissatisfaction than females from non-leanness sports (Kong & Harris, 2015; deBruin et al., 2011; Reinking & Alexander, 2005). Although less is known about how males experience these factors, a study conducted by Milligan and Pritchard (2006) showed that males from leanness-focused sports experience higher levels of body dissatisfaction and show a higher risk for disordered eating, similarly to females in the previous studies. However, this study also found that the opposite was true for females, in that females from non-leanness focused sports are at a greater risk for disordered eating and show greater levels of body dissatisfaction than females from leanness-focused sports, which is at odds with other findings about females.

A factor that can explain this gender discrepancy in body dissatisfaction is the fact that athletes often have multiple body images; there is a pressure to conform to idealized bodies both within the context of one's sport as well as daily life, which often cannot be accomplished simultaneously (deBruin et al., 2011; Russell, 2004), making the process of social comparison both nuanced and complicated. As a result, body satisfaction in one context does not necessarily correspond to similar levels of satisfaction in the other context (deBruin et al., 2011). In fact, on the contrary, higher levels of body satisfaction in one domain can correspond to lower levels of body satisfaction in the other domain; athletes that are highly satisfied with their bodies within the context of their sport tend to be less satisfied with their body in daily life, and vice versa (Russell, 2004; de Bruin et al., 2011). Therefore, when sport type is taken into consideration, one must also consider the context in which body satisfaction is being measured.

For instance, de Bruin et al. (2011) found that female athletes from leanness-focused sports were dissatisfied with their bodies within the context of their sport, but not in the context

of daily life. Similarly, Russell (2004) has also shown that female athletes from non-leanness focused sports were satisfied with their bodies within the context of their sport, but not in the context of daily life. These researchers offer the explanation that in leanness-focused sports, there is a struggle to conform to the strict body standards for sport, whereas in non-leanness-focused sports, greater levels of conformity to one's sport-related body standards lead to a deviation away from the societal standards of feminine attractiveness (Russell, 2004; de Bruin et al., 2011). Therefore, in Milligan and Pritchard's study, (which used a general measure of body dissatisfaction in contrast to Russell (2004) and deBruin et al.'s (2011) studies which measured body dissatisfaction within the contexts of both daily life and sport), it could have been the case that female athletes from non-leanness-focused sports athletes were at greater risk for body dissatisfaction and disordered eating than female athletes from leanness-focused sports only within the context of daily life and not sport. Similarly, it could have been the case that male athletes from leanness-focused sports were dissatisfied with their bodies in daily life, and not within the context of their sport. Despite this being merely speculative, the context in which body dissatisfaction is measured is nevertheless an important factor in examining gender differences in body image among athletes.

Performance-focused social comparisons, in contrast to appearance-focused social comparisons, are made with the goal of evaluating one's abilities (Corcoran et al., 2011; Festinger, 1954; Gastorf & Suls, 1978). For instance, if one wishes to evaluate their ability to write, they would compare their writing to those of other writers, or even to their own past work (Festinger, 1954). However, in athletes, the distinction between appearance and performance-focused social comparisons is less straightforward; in addition to merely being a salient comparison standpoint in sporting environments, physical appearance also serves as an indicator

of athletic ability (Milligan & Pritchard, 2006; Ratamess, 2012; Thompson & Sherman, 1999). Therefore, in athletes, social comparisons with the same individual can, in theory, be both appearance-focused or performance-focused. Consequently, athletes can obtain information about their own athletic performance or their physical appearance (and possibly, even both) by comparing themselves to other athletes.

Specifically among athletes, research has shown that greater levels of conformity to sport-specific body standards have been shown to be correlated with higher levels of athletic performance (Ratamess, 2012). For instance, professional cyclists and marathoners tend to be light and have low body fat percentages, sprint runners tend to be more muscular, and swimmers tend to be tall and have broad shoulders (Kjendlie & Stallman 2011; Lee, Martin, Anson, Grundy & Hahn, 2002; Gagnon, Steiper & Pontzer, 2018). Therefore, the correlation between physical appearance and athletic success not only makes the former a prominent standard for social comparison in an athletic environment, but leads to the attribution of others' athletic successes to their bodies before factors such as age, gender, and training level are considered (Pila et al., 2014; Hart, 2019). In other words, since athletes tend to view their own as well as others' bodies as indicators of athletic ability, appearance-focused social comparisons can also serve as indicators of one's own performance (Ratamess, 2012).

Since social comparisons in athletes serve as indicators of both physical appearance and athletic ability, it is possible that upward social comparisons to superior athletes can be motivational despite negatively impacting body image (Pila et al., 2014; Lockwood & Kunda, 1997). In fact, Festinger (1954) states that comparisons to targets that possess desirable traits create a drive towards uniformity that motivates individuals to reduce performance-related discrepancies between themselves and their target. For instance, he states that a person who

perceives themselves as less intelligent than the people to whom they compare themselves may be driven to increase their intelligence to match those of their comparison target. However, there are several factors, such as relevance of the target to oneself and the perceived attainability of the target's level of success, that influence how motivational an upward social comparison can be; superior targets that excel in domains that are personally relevant to oneself are more likely to be perceived as inspirational than those who excel in irrelevant domains (Lockwood & Kunda, 1997). Additionally, those who believe that they can attain levels of success that are similar to those they are comparing themselves to are more likely to be motivated to change themselves in order to achieve similar levels of success as their target, in addition to being inspired by them (Lockwood & Kunda, 1997; Pila et al., 2014).

With respect to body image, despite being shown that people tend to feel deflated and dissatisfied with their body while comparing themselves to superior targets, it has also been shown that those who believe that they can attain similar levels of success to the target report feeling motivated to improve themselves despite the dissatisfaction with their own bodies (Pila at al., 2014). It has been well-established that upward social comparisons negatively impact body image, both in athletes and non-athletes (Blechert et al., 2009; Engeln-Maddox, 2005; Myers & Crowther, 2009; Pila at al., 2014). However, social comparisons that are made with the goal of evaluating one's own physical attributes differ from other kinds of social comparisons, in that they can involve comparisons to targets that are often much superior (sometimes unrealistically so) to oneself (Engeln-Maddox, 2005; Jones, 2001 Lockwood & Kunda, 1997). In fact, studies have shown that women tend to make appearance-focused social comparisons to unrealistic media images of other women equally as often as they compare themselves to their peers, which is correlated to increased levels of body dissatisfaction (Engeln-Maddox, 2005; Jones, 2001).

Therefore, appearance-focused social comparisons go against Festinger's (1954) claim that comparisons with highly discrepant others are less likely to occur owing to the fact that they lead to inaccurate self-evaluations.

However, the likelihood of making performance-focused social comparisons decreases as the similarity between oneself and their targets decreases (Gastorf & Suls, 1978). According to the related attributes hypothesis, one is more likely to compare themselves to a target that is similar to oneself on attributes related to the dimension of the comparison; for instance, in order to evaluate one's running speed, people are likely to select targets who are not only similar to themselves in terms of their running speed, but also in terms of related factors such as age and sex (Corcoran et al., 2011; Gastorf & Suls, 1978; Festinger, 1954).

While the effects of social comparisons on body image and motivation have widely been studied, there are still some outcomes of social comparisons that are relatively less known. Firstly, a limitation of the studies on social comparison in general is that they place a heavy emphasis on the effects of upward social social comparisons, while giving much less importance to temporal or downward comparisons. Additionally, while it has been established that people are equally likely to make appearance-related social comparisons to their peers as well as highly superior others, it is unclear whether there is a difference in the motivational impacts of these comparisons based on one's similarity to their target.

Furthermore, social comparison has predominantly been studied in Western cultures, which have different (and arguably more stringent) standards of physical attractiveness than other cultures (Leahey, Crowther & Mickelson, 2007; Russell, 2004; Warren, Gleaves, Cepeda-Benito, Fernandez & Rodriguez-Ruiz, 2005). For instance, due to the emphasis placed on thinness in Western societies, people from Western countries tend to prefer slender bodies more

than people from non-Western countries (Engeln-Maddox, 2005; Frederick, Forbes & Berezovskaya, 2008). Therefore, it is less known whether individuals from non-Western cultures experience body dissatisfaction similarly to individuals from Western cultures. Additionally, Festinger (1954) argues that the drive towards uniformity that motivates individuals to reduce performance-related discrepancies between themselves and their comparison targets is an attribute that is unique to Western cultures. This is particularly relevant owing to the fact that the literature on social comparisons focuses almost exclusively on individuals from Western populations, making the cultural differences in motivation relatively unknown.

Lastly, and perhaps most significantly, social comparison has only sparsely been studied in a population of competitive athletes, and most of that research focuses on the differences between athletes from multiple sports rather than athletes within a single sport. Given the fact that athletes differ from the general public in that social comparisons with the same individual can be both appearance-focused (in that they lead to evaluations of one's body image), as well as performance-focused (in that they lead to self-evaluations of one's athletic ability), the likelihood as well as the outcomes of a comparison to a highly superior other are difficult to predict. Since the likelihood of making an appearance-focused comparison to a highly discrepant other is quite high, but the likelihood of making a performance-focused comparison decreases as the discrepancy between oneself and their target decreases, it is worth investigating how similarity affects social comparisons in athletes, and how the motivational impact of these comparisons differs based on the similarity of the comparison target to oneself.

Additionally, while it has been established that females from leanness-focused sports generally tend to be less satisfied with their bodies within the context of their sport and more satisfied with their bodies in daily life, it is unclear whether males from leanness-focused sports

experience the same. Therefore, the present study aims to explore how the effects of social comparisons on body image and motivation differ between athletes of a single leanness-focused sport (i.e., swimming), while also examining how body image and motivation differ cross-culturally between Indian and American swimmers. This study, then, examined the following hypotheses:

H1: Upward social comparisons to targets that are dissimilar to oneself will be related to greater levels of body dissatisfaction than downward or lateral social comparisons

H2: Those who believe they can attain their target's level of success will be highly motivated to achieve their goals, whereas those who believe they cannot attain their target's level of success will be less motivated to achieve their goals.

H3: Since social comparisons in athletes can be both appearance focused and performance-focused, comparisons to highly discrepant others will still lead to body dissatisfaction, but will be less likely to occur. In other words, athletes will prefer to engage in social comparisons with similar rather than dissimilar others.

H4: American swimmers will be more dissatisfied with their own bodies than Indian swimmers.

H5: Female athletes will be less satisfied with their bodies within the context of their sport, whereas males will be less satisfied with their bodies within the context of daily life.

H6: American swimmers will be more motivated to reach their goals than Indian swimmers.

Method

Participants

Participants in this study were 86 competitive swimmers that were either part of the Indian National Swimming Team (39.3% N = 33), or were National Collegiate Athletic Association (NCAA) varsity swimmers (60.7% N = 51). Participants included 36 (42.9%) male (M_{age} = 21, SD = 2.99) and 48(57.1%) female, (M_{age} = 20.41, SD = 2.07). All participants were recruited via email or Instant Messages through Facebook or Instagram, and eligibility was restricted to individuals who were 18 or older. Inclusion criteria for Indian National Swimming Team members was limited to swimmers that had achieved at least an 8th place finish at the 2019 Glenmark Senior National Aquatic Championships. All 60 participants who met the inclusion criteria were recruited for this study. A multistage sampling technique was used to select colleges from which NCAA swimmers were recruited: firstly, a stratified sampling technique was used to divide colleges by NCAA division, from which colleges from each of the three divisions were randomly sampled. The chosen colleges were then further stratified by geographic region, from which colleges from each of the four regions of the United States were randomly sampled. Lastly, a convenience sampling strategy was used to select 10 Division I, 8 Division II and 20 Division III colleges from which participants were recruited [see Table 1 for participant demographics].

Procedure and Materials

All procedures for this study were approved by the Drew University Institutional Review Board, and all data was collected using a web-based survey generated using Qualtrics.com. All participants were given an informed consent form prior to participation, and were asked to indicate their agreement to participate. Upon completion of the survey, participants were debriefed and thanked for their participation in the study.

Demographics. Participant demographics were assessed by collecting information about age, gender, and affiliation to a National Swimming governing body. Participants who indicated that they were an NCAA athlete were asked to provide information about their NCAA Division as well as their athletic Conference. All participants were asked to indicate their best swimming event, as well as their best time in that particular event.

Social comparison. All participants were asked to indicate the type of swimmer to whom they compared themselves in general, and while racing (Ex. Which of the following types of swimmers do you compare yourself to [while racing]? (a) Your teammate, (b) Your competitor, (c) An Olympic swimmer, (d) Yourself/Your own prior performances, (d) None of the above). If a participant indicated that they compared themselves to more than one type of swimmer within a certain context, they were asked to specify one type of swimmer to whom they compared themselves most often. Depending on the type of swimmer that was chosen, participants were asked to indicate the speed of this swimmer in relation to themselves (1 = "much faster than", 5 = "much slower than"), their perception of how likely they are to reach this swimmer's level of success (1 = "not at all likely", 3 = "extremely likely"), and whether they found this comparison motivating or demotivating. The speed of the swimmer who was chosen as the comparison target was used to assess the direction of the social comparison- participants who made comparisons to swimmers who were faster than themselves were said to have made upward social comparisons, whereas participants who made comparisons to swimmers who were slower than themselves were said to have made downward social comparisons. Additionally, the participants' perception of how likely they are to reach their target's level of success was used as a measure of similarity- those who believed that they were "not at all" or "somewhat" likely to reach their target's level of success were assumed to have made a comparison to someone who was dissimilar to

themselves. Similarly, those that believed that they were "extremely likely" or had already reached or surpassed their target's level of success were assumed to have made a comparison to someone who was similar to themselves.

Motivation. A measure of motivation was assessed using a modified version of the Achievement Goals Questionnaire for Sport (AGQ-S, Conroy, Elliot & Hofer, 2003). The original 12-item questionnaire measured four achievement goals: performance-approach (Ex. "It is important to me to do well compared to others"), performance-avoidance (Ex. "I just want to avoid performing worse than others), mastery-approach (Ex. "It is important to me to perform as well as I possibly can") and mastery-avoidance (Ex. "I worry that I may not perform as well as I possibly can"). In the present study, six additional items were added to assess the possibility of demotivation upon failing to meet performance or mastery goals (Ex. "I feel discouraged if I fail to perform as well as I possibly can," "I feel discouraged if I fail to master all aspects of my performance"). Participants were asked to respond to all items on a 7-point Likert Scale (1 = "not at all like me", 7 = "completely like me"). The AGQ-S has been shown to have a 21-day test-retest reliability that met the minimum criterion of .70. The AGQ-S has also been shown to be significantly correlated with the Performance Failure Appraisal Inventory (FPA-I), which provides a measure of fear of failure.

Body image. A modified version of the Contextual Body Image Questionnaire for Athletes (CBIQA, de Bruin, Oudejans, Bakker & Woertman, 2011) was administered to assess participants' perceptions of their own body, their perceptions about how others view their body, and how they perceive others' bodies. The original questionnaire consists of two identical sets of 15-items, one of which measures body image within the context of one's sport, while the other measures body image in daily life. In the present study, 10 additional items were added to the

athletic body image section in order to provide more specific information about participants' perception of other swimmers' bodies (Ex. I think my teammates'/competitors'/an Olympic swimmer's appearance is:"). Participants were asked to respond using a 7-point Likert scale to questions regarding appearance (1 = "Very unattractive", 7 = "Very attractive"), body shape (1 = "Much too slim", 7 = "Much too full"), muscularity (1 = "Much too unmuscular", 7 = "Much too muscular"), body weight and fat percentage (1 = "Much too low", 7 = "Much too high"). The CBIQA has an internal reliability of .91 on the athletic body image scale and .88 on the daily life body image scale. The CBIQA has also been shown to be significantly correlated with other measures of body image (de Bruin et al., 2011).

For the purpose of this study, the body image variables (muscularity, body weight, fat percentage and body shape) were recoded to reflect body dissatisfaction, such that the values at the extremes of the scale reflected higher levels of dissatisfaction, and values towards the middle reflected lower levels of body dissatisfaction [see Appendix Figure A]. Because appearance was measured on a different scale (1 = "very unattractive" to 7 = "very attractive"), the two variables related to appearance (i.e., appearance in daily life and sport) were not recoded, and were analyzed separately.

Results

Data Analysis

In the following analyses, we will primarily be examining the effects of the following three variables, as well as the subscales at which they are measured:

- Social Comparison was used as a measure in Hypotheses 1, 2, 3 and 4, wherein goal attainability was used as a measure of similarity, and target speed was used as a measure of direction [see Method for value labels and codification].

- Body Image was used as a measure in Hypotheses 1, 4 and 5. Body image was subdivided into two constructs: appearance and body dissatisfaction. Appearance was measured as a standalone variable, and the other four items from the CBIQA (body shape, body weight, fat percentage and muscularity) were recoded to reflect body dissatisfaction [refer to the Methods for the process of recoding, see Appendix Table A for descriptive statistics of the original and recoded variables]. Both appearance and body dissatisfaction were measured across the context of sport and daily life.
- Motivation was used as a measure in Hypotheses 2 and 6. The measure consisted of six items from the AGQ-S, which measure approach, avoidance and demotivation with respect to mastery and performance [see Appendix Table B for descriptive statistics].

Social Comparison and Body Image: Direction and Similarity

The following analyses will deal with Hypothesis 1, which states that upward social comparisons to targets that are dissimilar to oneself will be related to greater levels of body dissatisfaction than downward or lateral social comparisons.

Body dissatisfaction. A 2(context) x 4(goal attainability) x 5(target speed) three-way mixed model ANOVA was conducted to examine differences in body dissatisfaction based on the speed of one's target as well as the perceived attainability of their target's level of success. Prior to the analysis, the underlying assumptions of normality and equality of covariances were evaluated. Because not all sample sizes were greater than 30, the test was not robust to violations of the normality assumption. Therefore, non-linear square root transformations were used for the analysis. According to Box's M, the equality of covariances assumption was met, $F(12, 1523.67) = .92$, $p = .53$. Since Mauchly's test of sphericity was not met, the Hyunh-Feldt adjustment was used to calculate *p*-values.

According to the results of the ANOVA, there was a statistically significant main effect of goal attainability, $F(3, 45) = 1.01$, $p < .05$. According to partial eta squared, approximately 25.9% of the variance in body dissatisfaction can be explained by goal attainability, controlling for context. Post-hoc analyses of least significant differences revealed that those that were "not at all likely" or somewhat likely" to achieve their target's level of success were significantly more dissatisfied with their own bodies than those that were "extremely likely" to reach their target's level of success. However, there were no statistically significant differences in body dissatisfaction between those that had reached or surpassed their target's level of success and those that were "not at all", "somewhat" and "extremely" likely to reach their target's level of success [see Figure 1]. No other statistically significant effects were found [see Table 2 for ANOVA summary].

Appearance. A 2(context) x 4(goal attainability) x 5(target speed) mixed model ANOVA was conducted to examine differences in one's perception of appearance based on one's perceived attainability of their target's level of success. Prior to the analysis, the underlying assumptions of normality and equality of covariances were evaluated. Since not all sample sizes were greater than 30, the test was not robust to violations of the normality assumption. Therefore, non-linear log transformations were used for the analysis. According to Box's M, the equality of covariances assumption was met, $F(12, 1523.67) = 1.34$, $p = .19$. Since Mauchly's test of sphericity was not met, the Hyunh-Feldt adjustment was used to calculate p-values. According to the results of the ANOVA, neither the interactions nor the main effects were statistically significant [see Table 3 for ANOVA summary]. This indicates that one's perception of their own appearance based on the speed or one's target as well as the perceived attainability

of the target's level of success did not differ between the contexts of sport and daily life [see Figure 2].

Social Comparison and Motivation

The following analyses will primarily deal with Hypothesis 2, which states that those who believe they can attain their target's level of success will show high levels of approach-related motivation, whereas those who believe they cannot attain their target's level of success will show low levels of approach-related motivation.

A 6(motivation type) x 4(goal attainability) x 5(target speed) mixed model ANOVA was conducted to examine differences in one's motivation based on one's perceived attainability of their target's level of success. Prior to the analysis, the underlying assumptions of normality and equality of covariances were evaluated. Since not all sample sizes were greater than 30, the test was not robust to violations of the normality assumption. Therefore, non-linear log transformations were used for the analysis. According to Box's M, the equality of covariances assumption was not met even after implementing the log transformations, $F(21, 542.14) = 1.91$, $p = .01$. Therefore, the p-values associated with this analysis must be interpreted with caution. Since Mauchly's test of sphericity was not met, the Hyunh-Feldt adjustment was used to calculate p-values.

According to the results of the ANOVA, there was a statistically significant interaction between motivation type and goal attainability, $F(13.26, 141.48) = 2.08$, $p < .05$. No other statistically significant differences were found [see Table 5 for ANOVA summary]. According to partial eta squared, approximately 16.3% of the variance in motivation can be explained by the interaction between motivation type and goal attainability, controlling for main effects.

Post-hoc analyses of simple effects revealed that by fixing goal attainability and comparing motivation, among the participants that were "not at all likely" to reach their target's level of success, participants tended to be significantly higher on avoidance and demotivation than any other type of motivation. However, participants were higher in mastery-related avoidance and demotivation than performance-related avoidance and demotivation [see Figure 3 A]. Among those that were "somewhat likely" to reach their target's level of success, participants tended to be highest on mastery-approach than any other kind of motivation. Additionally, participants tended to be higher on mastery-related motivation than on performance-related motivation, with the exception that there was no difference between performance-approach and mastery-demotivation [see Figure 3 B]. Among those that were "extremely likely" to reach their target's level of success, participants were higher on approach-related motivation than avoidance or demotivation in terms of both mastery and performance, but were higher on mastery-approach than performance approach [see Figure 3 C]. Lastly, among the participants that had already reached or surpassed their target's level of success, participants tended to be higher on mastery-approach than any other kind of motivation [see Figure 3 D].

Percentage of Social Comparisons by Speed and Direction

This analysis will deal with Hypothesis 3, which states that athletes will prefer to engage in social comparisons with peers who are similar to themselves (in terms of both speed and goal attainability), as opposed to engaging in highly discrepant comparisons.

A majority of participants prefered to compare themselves to targets who were roughly the same speed as themselves, as opposed to the five participants who compared themselves to targets who were much faster than themselves. Additionally, a larger percentage of participants compared themselves to a target whose success they had reached or surpassed, than the

percentage of participants whose success they were not at all likely to achieve. Lastly, only two (2.7%) participants compared themselves to a target who was both much faster than themselves and whose success they were not at all likely to achieve, in contrast to the 28 (37.8%) of participants who compared themselves to targets who were the same speed as themselves and whose success they had reached or surpassed [see Table 6].

Gender and Ethnicity

Body Image. These analyses will deal with Hypothesis 4, which states that American swimmers will be more dissatisfied with their bodies than Indian swimmers. These analyses will also deal with Hypothesis 5, which states that female athletes will be more dissatisfied with their bodies within the context of their sport, while male athletes will be more dissatisfied with their bodies within the context of daily life.

A 2(context) x 2(ethnicity) x 2(gender) three-way mixed model ANOVA was conducted to examine whether body dissatisfaction across the contexts of daily life and sport vary between gender and ethnicity. Prior to the analysis, the underlying assumptions of normality and equality of covariances were evaluated. Since the sample size of all groups was not greater than 30, the test was not robust to violations of the normality assumption. Therefore, the analysis was conducted using non-linear square root transformations. According to Box's M, the equality of covariances assumption was met, $F(9, 10646.28) = 1.55$, $p = .13$. Since the sphericity assumption was not met, the Huynh-Feldt adjustment was used to calculate *p*-values.

The results of the ANOVA showed that there was a statistically significant interaction between gender and context, $F(2, 53) = 5.93$, $p < .05$. According to partial eta squared, approximately 18.3% of the variance in body dissatisfaction can be explained by the interaction between gender and context, controlling for main effects. Post-hoc analyses of simple effects

revealed that, by fixing gender and comparing context, males tended to be statistically significantly more dissatisfied with their bodies within the context of sport (M = .89, SD = .57) than in daily life (M = .77, SD = .57). No other differences were found.

The results of the ANOVA showed that there was a statistically significant statistically significant main effect of ethnicity, $F(1, 53) = 10.47$, $p < .05$. Post-hoc testing revealed that American swimmers were statistically significantly more dissatisfied with their own bodies across both contexts than Indian swimmers [see Figure 4]. According to partial eta squared, approximately 16.5% of the variance in body dissatisfaction can be explained by ethnicity, controlling for context. The interaction between ethnicity and context was not statistically significant, $F(1, 53) = .92$, $p = .34$. This indicates that the level of body dissatisfaction between Indians and Americans did not vary between the contexts of sport and daily life. Lastly, the three-way interaction between gender, ethnicity and context was not statistically significant, $F(1, 53) = 1.78$, $p = .28$. This indicates that the patterns of differences in body satisfaction for gender and ethnicity speed did not differ by context.

Appearance. A 2(context) x 2(gender) x 2(ethnicity) mixed model ANOVA was conducted to examine whether the differences in one's perception of their own appearance across the contexts of daily life and sport vary between gender and ethnicity. Prior to the analysis, the underlying assumptions of normality and equality of covariances were evaluated. Since the sample sizes of all groups were not greater than 30, the test was not robust to violations of the normality assumption. Therefore, non-linear log transformations were used for the analysis. According to Box's M, the equality of covariances assumption was met, $F(9, 15787.97) = .79$, $p = .62$. Since the sphericity assumption was not met, the Hyunh-Feldt adjustment was used to calculate p-values.

According to the results of the ANOVA, none of the interactions or main effects were statistically significant [see Table 4 for ANOVA summary]. This indicates that the patterns of differences in appearance did not differ by context or ethnicity.

Motivation and Ethnicity

These analyses will deal with Hypothesis 6, which states that American swimmers will be more motivated to reach their goals than Indian swimmers.

A 6(Motivation Type) x 2(ethnicity) two-way mixed model ANOVA was conducted to examine whether body dissatisfaction across the contexts of daily life and sport vary between gender and ethnicity. Prior to the analysis, the underlying assumptions of normality and equality of covariances were evaluated. Since the sample size of all groups was not greater than 30, the test was not robust to violations of the normality assumption. Therefore, the analysis was conducted using non-linear log transformations. According to Box's M, the equality of covariances assumption was met, $F(21, 6487.99) = 1.45$, $p = .08$. Since the sphericity assumption was not met, the Huynh-Feldt adjustment was used to calculate *p*-values.

According to the results of the ANOVA, there was a statistically significant interaction between motivation type and ethnicity, $F(3.58, 150.41) = 4.00$, $p < .05$. Post-hoc analyses of simple effects revealed that, by fixing ethnicity and comparing motivation type, Indian swimmers tended to be highest on Mastery-Approach than any other type of motivation, on average. Additionally, American swimmers tended to be higher on all types of mastery-related motivation than performance-related motivation, with the exception that there was no difference between mastery-demotivation and performance-approach. However, no statistically significant differences were found while fixing motivation type and comparing ethnicity [see Figure 5]

Discussion

The present study examined the effects of social comparison among competitive Indian and American swimmers, along with a cross-cultural analysis of body image and motivation. The study predicted the following:

H1: Upward social comparisons to targets that are dissimilar to oneself will be related to greater levels of body dissatisfaction than downward or lateral social comparisons.

This hypothesis was partially supported. It was found that the participants who believed that they were "not at all likely" or "somewhat likely" to attain their target's level of success were significantly more dissatisfied with their own bodies than those who believed that they were "extremely likely" to reach their target's level of success. However, there were no significant differences in body dissatisfaction between those who had already reached or surpassed their target's level of success, and those who were "not at all", "somewhat" and "extremely" likely to reach their target's level of success.

Therefore, this hypothesis was partially supported; while it can be concluded that body dissatisfaction increases as the similarity between oneself and their target decreases, the direction of the social comparison did not influence this effect. However, it must be noted here that none of the participants in our study engaged in downward social comparisons, which might have influenced this result [see Table 6]. These results support the claims made by previous researchers, which state that body dissatisfaction increases as the similarity between oneself and their target decreases (Engeln-Maddox, 2005; Jones, 2001; Sabiston & Chandler, 2010; Pila et al., 2014). However, what was unique about the findings in this study was that body dissatisfaction tended to decrease as target similarity increased only so long as the target's success had not yet been met and was viewed as being attainable; those who had already attained their target's level of success were not significantly higher or lower on body dissatisfaction than

those who not at all, somewhat, or extremely likely to reach their target's level of success. Therefore, it may be the case that target similarity only plays a role in body dissatisfaction upto the point where the target's level of success has not yet been attained. As a result, body dissatisfaction among individuals who compare themselves to targets whose success they have already attained may be influenced by factors other than just target similarity. Interestingly, neither similarity nor direction had an effect on one's perception of their own appearance [see note under Hypothesis 5 for further explanation].

H2: Those who believe they can attain their target's level of success will show high levels of approach-related motivation, whereas those who believe they cannot attain their target's level of success will show high levels of avoidance and demotivation.

This hypothesis was supported. On average, the participants who believed they had reached, surpassed or were "extremely likely" to reach their target's level of success exhibited high levels of mastery and approach-related motivation. This indicates that these participants were highly motivated to master all aspects of their performance, but were not worried about performing badly or demotivated upon failing to perform well. Participants who were "somewhat likely" to reach their target's level of success were higher on mastery-related motivation than performance-related motivation. This indicates that these participants were more motivated to master all aspects of their performance rather than performing better compared to others. However, they were also worried about performing badly and were demotivated if they failed to perform well.

Lastly, participants who were "not at all" likely to reach their target's level participants tended to be significantly higher on avoidance and demotivation than any other type of motivation. However, these participants were higher in mastery-related avoidance and

demotivation than performance-related avoidance and demotivation. This indicates that these participants were often concerned with not performing as well as they possibly could, and were demotivated when they failed to do so.

These findings support the claims of Lockwood and Kunda (1997) and Pila et al. (2014), that those who believe that they can attain levels of success that are similar to those to whom they are comparing themselves are more likely to be motivated to change themselves in order to achieve similar levels of success as their target. However, what was unique about our findings was that, in addition to being motivated to reach similar levels of success to their target (as evidenced by their high levels of performance-related motivation), participants who believed that they could attain their target's level of success exhibited an even greater desire to improve themselves in order to master all aspects of their performance. In other words, these participants exhibited levels of motivation that went beyond simply wanting to achieve similar levels of success as their targets.

H3: Athletes will prefer to engage in social comparisons with similar rather than dissimilar others.

This hypothesis was supported. It was found that, in general, a majority of the participants tended to make social comparisons to targets who were the same speed as themselves. Additionally, a significantly larger portion of participants compared themselves to targets who were both the same speed as themselves and whose success they had reached or surpassed, than the participants who compared themselves to targets who were both much faster than themselves and whose success they were not at all likely to achieve. Therefore, in terms of both similarity and direction, participants preferred to compare themselves to similar rather than discrepant others, which supports this hypothesis.

This finding also supports Festinger's (1954) and Gastorf & Suls' (1978) claims that the likelihood of making performance-focused comparisons decreases as the similarity between oneself and their target decreases. However, this finding contrasts with the claim that individuals are at the least equally, if not more likely to engage in appearance-focused social comparisons with highly discrepant others as they are to compare themselves to similar peers (Engeln-Maddox, 2005; Jones, 2001). This indicates that the participants in this study were more likely to have made performance-focused social comparisons than appearance-focused social comparisons. Additionally, since athletes' bodies are so closely related to their performance, this would also explain why social comparisons had an effect on body image but not appearance in Hypothesis 1.

H4: American swimmers will be more dissatisfied with their bodies than Indian swimmers.

This hypothesis was partially supported, since it was found that American swimmers were significantly more dissatisfied with their bodies than Indian swimmers. However, there were no significant differences between Indians and Americans in the perception of their own appearance [see note under Hypothesis 5 for further explanation]. This falls in line with the claim that since the standards for physical attractiveness are much more stringent in Western societies than in non-Western societies, individuals from Western societies experience higher levels of body dissatisfaction than individuals from non-Western societies (Frederick et al., 2008). appearance.

H5: Female athletes will be less satisfied with their bodies within the context of their sport, while male athletes will be less satisfied with their bodies within the context of daily life.

This hypothesis was not supported. It was found that males tended to be significantly more dissatisfied with their bodies within the context of their sport than within the context of

daily life, which is the opposite of what was predicted. Additionally, it was also shown that there were no significant differences between females' level of body dissatisfaction within the context of sport and daily life, which also goes against our prediction, as well as de Bruin et al.'s (2011) findings. There were no significant gender differences in the perception of one's own appearance [see note]. Originally, this was hypothesized due to previous claims that females from leanness-focused sports tend to be more dissatisfied with their bodies within the context of sport than in daily life (de Bruin et al., 2011; Russell, 2004). Additionally, the lack of research on the contextual body image differences in males, along with the fact that leanness-focused sports emphasize "feminine" body types, are what led to the hypothesis that males from leanness-focused sports would be more dissatisfied with their bodies in daily life (de Bruin et al., 2011; Russell, 2004).

It might have been the case that the distinction between one's athletic and social body images was larger in males than in females in this study. For instance, males in leanness-focused sports must conform to body standards that often go against the masculine body standards set by society, and societal attractiveness in males is perceived as being highly muscular and having a broader upper body shape, which involves having a higher body weight (Brierly, Brooks, Mond, Stevenson & Stephen, 2016; Pila et al., 2014). On the other hand, leanness-focused sports emphasize slim body types with lower body weights (Thompson & Sherman, 1999). Therefore, it is possible that the males in the present study were satisfied with their bodies in daily life which meant that they do not conform to the body standards required by their sport, which is why we see body dissatisfaction within the context of sport, but not daily life. These findings therefore support Russell's (2004) and de Bruin et al.'s (2011) claim that athletes can have multiple body images.

Particularly among females, it is also possible that the distinction between one's athletic and social body images was less clear in our study than in de Bruin et al's (2011) study, which is why we failed to see a difference between the two. More specifically, thinness is a standard that is required to conform to the body-standards of leanness-focused sports as well as the societal standards of feminine attractiveness (de Bruin et al., 2011; Pila et al., 2014). However, de Bruin et al. stated that the body dissatisfaction that was found among the females in their study arose due to the fact that body standards were perceived as being more stringent within the context of sport than in daily life. However, what was markedly different between our sample of female athletes and de Bruin's et al's (2011) sample was the fact that the latter predominantly consisted of athletes from aesthetic sports, which, by definition, are sports where lean body types are externally judged and scored on the basis of attractiveness (Kantanista et al., 2018). By contrast, swimming is considered a non-aesthetic leanness-focused sport, wherein a lean body type is emphasized for performance rather than appearance (Ratamess, 2012).

It could therefore be argued that the external evaluation of one's appearance in aesthetic sports creates an added pressure to conform to the standards of attractiveness that are required by the sport, in addition to the already existing pressure to conform to its idealized body types. In other words, it is possible that the perceived stringency of sport-related body standards was higher in their study than in ours. This is illustrated by the fact that female athletes from nonaesthetic sport experience lower levels of Social Physique Anxiety (which is the anxiety that results from the real or perceived interpersonal evaluation of one's body, Hart, Leary & Rejeski, 1989) than athletes from aesthetic sports (Gay, Monsma & Torress-McGhee, 2011). Therefore, since swimming is a sport where one's performance is not externally scored or judged, it might have been the case that the participants in our study had lower levels of Social Physique Anxiety

within the context of their sport, which would explain why the females in our study showed similar levels of body dissatisfaction across the contexts of both sport and daily life. However, since Social Physique Anxiety was not explicitly measured in this study, further research is required to strengthen this claim. In short, it was due to the discrepancy between societal and athletic body images being larger in males than in females, that these results were found.

Note: It was found that none of the variables that had significant effects on body dissatisfaction (social comparison-Hypothesis 1, ethnicity-Hypothesis 4, and gender-Hypothesis 5) had significant effects on appearance. However, it was also found that the two constructs were strongly negatively correlated, ($r(56) = -.60$, $p<.0001$), indicating that one's perception of their own attractiveness decreased as their dissatisfaction with their own body increased. This indicates that there might have been a variable that was not measured, which affected both body dissatisfaction and appearance, or that mediated the relationship between the two constructs. Additionally, it might also be the case that attractiveness had a direct effect on body dissatisfaction (or vice versa), but due to the correlational nature of this relationship, we will be unable to determine the direction of this effect. Nevertheless, this provides evidence that appearance and body dissatisfaction are correlated but separable constructs.

H6: American swimmers will be more motivated to reach their goals than Indian swimmers.

This hypothesis was not supported. While it was found that Americans were higher on different types of motivation than Indians, there were no statistically significant differences between Indians and Americans on any type of motivation. More specifically, Indians tended to be higher on mastery-approach than any other type of motivation, whereas Americans tended to be higher on all types of mastery-related motivation than performance-related motivation (with the exception that the difference between mastery-demotivation and performance-approach was

not statistically significant). This indicates that both groups of participants exhibited levels of motivation that went beyond simply wanting to achieve their targets' level of success, and were highly motivated to master all aspects of their performance. This goes against Festinger's (1954) claim that the drive to reduce performance-related discrepancies is an attribute that is unique to Western cultures. In fact, both groups exhibited a desire to be the best they can by improving themselves rather than to be better than others by reducing interpersonal discrepancies.

Limitations

The most significant limitation of this study was nonresponse bias with regard to the sample of collegiate swimmers from the United States. Several factors (such as the lack of financial incentive to participate, the number of communication channels it took for the survey to reach the participants, and the research participation restrictions set in place by some Universities or colleges) might have impacted the likelihood of response. As a result, the generalizability of these results to the population of American swimmers remains poor.

Although measures were taken to implement a random sampling strategy that allowed for the sampling of various different NCAA institutions across the United States, the final sample of American swimmers consisted predominantly of Division III swimmers that hailed from a single University, which was also the same institution that I attended. Since it was the experiences and interactions with the swimmers from this institution that led to the motivation behind this study, there arises the potential for confirmation bias. This potential bias arises not from the analysis and interpretation of the results themselves (as they were analyzed according to established the guidelines established by de Bruin et al. (2010) and Conroy et al. (2003) in the CBIQA and the AGQ-S, respectively), but rather in the selection of the measures that were used in this study. For instance, the reliability and validity of both the CBIQA (which measured body dissatisfaction)

and the AGQ-S (which measured motivation) were tested using exclusively Western respondents. Therefore, there is a possibility that these questionnaires captured the constructs they measured more accurately in the American sample in our study than the Indian sample.

A consequence of the overrepresentation of Division III athletes in the sample of American collegiate swimmers and the homogeneity of the sample is that the Indian and American swimmers in this study might not have been the most appropriate groups to compare to each other. Originally, the study intended to compare body dissatisfaction between Indian and American National Team members. However, logistical restrictions on the permissibility of USA National Team members to participate in research made it so that I could not gain access to such a sample. Therefore, this hinders the legitimacy of the claim that American swimmers are more dissatisfied with their bodies than Indian swimmers, because these two groups of swimmers differed notably in their level of competition; while a majority of the members of the Indian National Team have competed nationally or internationally, a majority of the NCAA athletes have competed at the regional or intercollegiate level. Nevertheless, it must be noted that the sample of Indian swimmers was quite representative of Indian National Team members as a whole (based on the fact that over 50% of its members responded to this survey), and it can therefore be concluded that they are relatively satisfied with their own bodies. Similarly, the overrepresentation of Division III athletes prevented the ability to make comparisons between Division I, II, and III swimmers in the United States, which may have better enabled the generalization of results to American college swimmers.

Another limitation of the study was that there may have been a discrepancy in the interpretation of the items in the CBIQA. All the body image subscales (with the exception of appearance) in the CBIQA reflected extreme values towards the extremes of the scales and

neutral values towards the middle. Therefore, the directionality of these subscales was recoded to reflect valence, wherein values towards the extreme ends of the subscales reflected extreme levels of body dissatisfaction, and values towards the middle reflected moderate levels of body dissatisfaction. However, it may very well be possible that the values in some subscales that were interpreted in this recoding as being negative might have been interpreted as being positive in the minds of the participants. For instance, the values assigned to the items "much too muscular" and "much too slim" were interpreted as being negative and therefore reflecting body dissatisfaction (due to the fact that these variables were analyzed in a similar manner in de Bruin et al.'s (2010) study), whereas there is a legitimate possibility that these items may have been interpreted as being positive constructs by the participants. The reason I acknowledge this is the fact that participants tended to perceive Olympic swimmers as being "too muscular" ($M = 5.50$, $SD = 1.10$), while simultaneously perceiving them as being "attractive" ($M = 6.24$, $SD = .89$), on average. As a result, the participants' level of body dissatisfaction may not have accurately been reflected in the study.

Suggestions for Future Studies

Despite its limitations, this was one of the first studies that examined how body image and motivation differed cross-culturally between athletes of a single sport. Additionally, this study allowed for social comparisons to occur in a relatively naturalistic setting, wherein the participants themselves described the types of swimmers they compared themselves to rather than explicitly instructing participants to compare themselves to specific types of swimmers. Therefore, this study highlights the importance of considering cultural and societal factors while evaluating body dissatisfaction among athletes from leanness-focused sports. However, there are some ways in which future studies could broaden the scope of this research:

By showing that American swimmers are relatively more dissatisfied with their own bodies than Indian swimmers, these results highlight the prevalence of body dissatisfaction among athletes from Western cultures. However, this study did not explicitly explore why these differences exist. Studies have shown that Western media images have become unrealistically slender over the years, which has led to greater internalizations of the thin ideal (Frederick et al., 2008). Additionally, increased contact with idealized slender Western media images, both within and outside Western cultures, lead to increased body dissatisfaction, highlighting the potential for a contagion effect of body dissatisfaction and eating disorder culture stemming from Western cultures (Leahey et al., 2007). Yet what was interesting about the present study was that American swimmers were dissatisfied with their own bodies despite predominantly comparing themselves to targets they encounter in daily life. In other words, these were dissatisfied with their bodies despite being exposed to realistic and non-media-related body types. This could be explained by the fact that Western cultures tend to place a significant amount of emphasis on thinness, and the people from those cultures tend to prefer slender bodies (Frederick et al., 2008). Therefore, future studies should examine whether athletes from Western cultures have an ideal body type that is different from that of athletes from non-Western cultures, and whether this could be a factor that explains cross-cultural differences in body dissatisfaction.

On a related note, while the study highlighted the influence of broad societal and cultural factors on body dissatisfaction, it would also be useful to explore the influences of factors such as the external pressure pur on athletes by their peers, coaches and judges, self-esteem, Social Physique Anxiety and the internalization of an ideal body type (which have been shown to contribute to body dissatisfaction and eating disorder symptomatology, Furnham, Badmin & Sneade, 2002; Gay et al., 2011; Milligan & Pritchard, 2006; Pila et al., 2014). More specifically,

future studies should examine whether cross-cultural differences in ideal body types influence the degree to which one perceives discrepancies between their real and ideal body types, and how other intrinsic factors influence the degree to which that ideal body type is internalized.

Additionally, it was found in our study that body and appearance-dissatisfaction were highly correlated, but the same factors that affected body dissatisfaction did not affect appearance. Therefore, it may be the case that some of these intrinsic factors either have an effect on both appearance and body dissatisfaction, or mediate the relationship between the two constructs. For instance, it may have been the case that those who were dissatisfied with their own appearance also had low levels of self-esteem, which in turn might have influenced how dissatisfied they were with their own body. Alternatively, it might also be the case that there is a causal relationship between the two constructs, in that being dissatisfied with one's appearance is what causes them to be dissatisfied with their own body, or vice versa. However, these claims are merely speculative, and further studies are required to provide clearer insight into why the unique relationship between appearance and body dissatisfaction exists.

Lastly, in order to combat the methodological limitations posed by this study, future studies should aim to obtain a larger and more varied sample of collegiate swimmers around the United States, as well as a sample of USA National Team members. This will facilitate a better comparison of swimmers who compete at the same level in their respective countries in order to better determine the nature of cross-cultural differences in body image. Additionally, larger samples will enable researchers to better examine the variability in body dissatisfaction within each sample, therefore improving the external validity of the research. In order to reduce the discrepancy between participant and researcher interpretations of the CBIQA, future studies could perhaps change the scale of the items to reflect 1 = "extremely slim/low/unmuscular" and

7 = “extremely full/high/muscular,” in order to exclude the negative connotations of the words “much too”. However, this would facilitate the need for additional questions, (such as whether the participants viewed the comparison favourably or unfavourably), in order to accurately measure body dissatisfaction. In addition to making the analysis more complicated, this also creates potential for response fatigue since the questions in the CBIQA are quite repetitive in nature. Therefore, it might be useful to conduct this research using qualitative methodology. For instance, using open-ended questions to give participants the opportunity to elaborate on their answers would not only reduce any participant-researcher discrepancies between the interpretation of those answers, but could also better capture certain constructs (such as body dissatisfaction) among non-Western populations that may not have accurately been captured by a questionnaire.

In conclusion, the findings from the present study illustrate how social comparison, culture and gender play important roles in influencing body image and motivation among swimmers. By illustrating how the perceived attainability of a comparison target’s level of success impacts how satisfied an athlete is with their own body as well as how motivated they are to achieve their goals, the study highlights the impact of the close relationship between body image and performance in athletes. Additionally, the present study addressed the limitations of past studies by examining how athletes from non-Western cultures experience body dissatisfaction differently from athletes from Western cultures. More specifically, the study showed that American swimmers were significantly more dissatisfied with their own bodies than Indian swimmers, owing to the fact that the standards of attractiveness in Western societies are more stringent than those in non-Western societies.

The present study was also one of the few that examined gender differences in body dissatisfaction within athletes of a single leanness-focused sport. Males were found to have significantly higher levels of body dissatisfaction within the context of sport than in daily life, whereas no such contextual differences were found in females. With regard to males, these findings highlight the discrepancy between heterosexually masculine standards of attractiveness and the body standards that are normative of leanness-focused sports, and how satisfaction in one context does not correspond to body satisfaction in the other. Particularly with regard to females, the lack of such a contextual difference found in our study contradicts the findings of previous research, which showed that athletes from leanness-focused sports experience higher levels of body dissatisfaction within the context of their sport (de Bruin et al., 2011; Russell, 2004). This highlights the fact that the perceived stringency of sport-related body standards is significantly influenced by the aesthetic value placed on physical appearance within the context of the sport. In other words, since swimming is a non-aesthetic sport where leanness is emphasized for performance and not appearance, the contextual body image differences in these athletes are less apparent than in athletes from externally-judged aesthetic sports.

Athletes from leanness-focused sports are said to be at a high risk for developing eating disorders (Smolak et al., 2000). By examining the effect of social comparison in athletes, the study highlights the role of several factors that influence body dissatisfaction, such as the close relationship between body image and performance in athletes, the cultural and gender differences in the standards of physical attractiveness, and the aesthetic value placed on bodies in certain sports, providing insight into why such a risk might exist. However, these factors are deeply rooted in the histories of certain cultures and sport and therefore cannot easily be altered. What can be more easily altered, is the athletes' awareness of the factors that influence body image in

order to help athletes view their own bodies in a manner that is adaptive. Therefore, in addition to examining the factors behind why certain athletes are at risk for developing eating disorders, existing as well as future studies should place an equal (if not greater) emphasis on developing mechanisms that lower this risk, which begins with creating awareness among the athletes themselves.

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Table 1

Participant Demographics

Athlete Demographic	Gender	Mean Age (*SD*)
NCAA Division 1	Male=7 (8.3%)	20.14 (.69)
	Female=1 (1.2%)	
	Total=8 (9.5%)	20.25 (.71)
NCAA Division 2	Male=1 (1.2%)	
	Female=10 (11.9%)	20.50 (1.43)
	Total=11 (13.1%)	20.45 (1.37)
NCAA Division 3	Male=13 (15.5%)	20.31 (1.25)
	Female=19 (22.6%)	19.47 (1.35)
	Total=32 (38.1%)	19.81 (.35)
Indian National Team	Male=15 (17.9%)	22.01 (4.33)
	Female=18 (21.4%)	21.56 (2.55)
	Total=33 (39.3%)	22.22 (3.95)
Total:	Male=36 (42.9%)	21.00 (2.99)
	Female=48 (57.1%)	20.47 (6.93)
	Total=84	20.93 (2.92)

Table 2

Summary Table of the 2(Context) x 3(Goal Attainability) x 5(Target Speed) Mixed Model ANOVA

Dependent Variable: Body Dissatisfaction

Source	Sum of Squares	*df*	Mean Square	*F*	*p*	Partial Eta Squared
Context	.036	1	.036	1.491	.228	.032
Context*Goal Attainability	.107	3	.036	1.456	.239	.088
Context*Target Speed	.109	2	.055	2.237	.119	.09
Context*Goal Attainability*Target Speed	.101	2	.051	2.074	.138	.084
Error(Context)	1.099	45	.024			

Note: all values are calculated based on the Hyunh-Feldt adjustment, since Mauchly's test of sphericity was not met.

Table 3

ANOVA Summary Table of the 2(Context) x 3(Goal Attainability) x 5(Target Speed) Mixed Model ANOVA

Dependent Variable: Appearance

Source	Sum of Squares	*df*	Mean Square	*F*	*p*	Partial Eta Squared
Context	.000	1	.000	.061	.806	.001
Context*Goal Attainability	.012	3	.004	.527	.666	.033
Context*Target Speed	.001	2	.001	.066	.936	.033
Context*Goal Attainability*Target Speed	.046	2	.023	2.928	.064	.113
Error(Context)	.360	46	.008			
Intercept	4.996	1	4.996	45.097	.000	.495
Goal Attainability	.179	3	.060	.538	.659	.034
Target Speed	.040	2	.020	.179	.836	.008
Error	5.097	46	.111			

Note: all values are calculated based on the Hyunh-Feldt adjustment, since Mauchly's test of sphericity was not met.

Table 4

ANOVA Summary Table of the 2(Context) x 2(Gender) x 2(Ethnicity) Mixed Model ANOVA

Source	Sum of Squares	*df*	Mean Square	*F*	*p*	Partial Eta Squared
Context	.000	1	.000	.049	.825	.001
Context*Gender	.002	1	.001	.126	.882	.005
Context*Ethnicity	.005	1	.005	.578	.450	.011
Context*Ethnicity* Gender	3.946E-5	1	3.946E-5	.005	.946	.000
Error(Context)	.464	54	.009			
Intercept	2.183	1	2.183	22.659	.000	.296
Gender	.205	1	.102	1.064	.352	.038
Ethnicity	.249	1	.249	2.587	.114	.046
Error	5.202	54	.096			

Note: all values are calculated based on the Hyunh-Feldt adjustment, since Mauchly's test of sphericity was not met.

Table 5

ANOVA Summary Table of the 6(Motivation Type) x 3(Goal Attainability) x 5(Target Speed) Mixed Model ANOVA

Source	Sum of Squares	*df*	Mean Square	*F*	*p*	Partial Eta Squared
Motivation Type	3.87	5	.88	12.57	.000	.282
Motivation Type*Goal Attainability	1.924	13.26	.145	2.083	.018	.163
MotivationType* Target Speed	.896	8.842	.101	1.455	.172	.083
Motivation Type*Goal Attainability*Target Speed	.405	4.421	.092	1.315	.265	.039
Error(Motivation Type)	9.853	141.475	.070			

Note: all values are calculated based on the Hyunh-Feldt adjustment, since Mauchly's test of sphericity was not met.

Table 6

Number (and Percentage) of Targets to whom Participants Compared Themselves, Based on Similarity (Horizontal) and Direction (Vertical)

	Not at all Likely	Somewhat Likely	Extremely Likely	Reached/Surpassed	**Total**
Same Speed	0	9 (12.2%)	13 (17.6%)	28 (37.8%)	50 (67.6%)
Faster	3 (4.1%)	12 (16.2%)	4 (5.4%)	0	19 (25.7%)
Much Faster	2 (2.7%)	3 (4.1%)	0	0	5 (6.8%)
Total	5 (6.8%)	24 (27.7%)	17 (23%)	28 (37.8%)	74

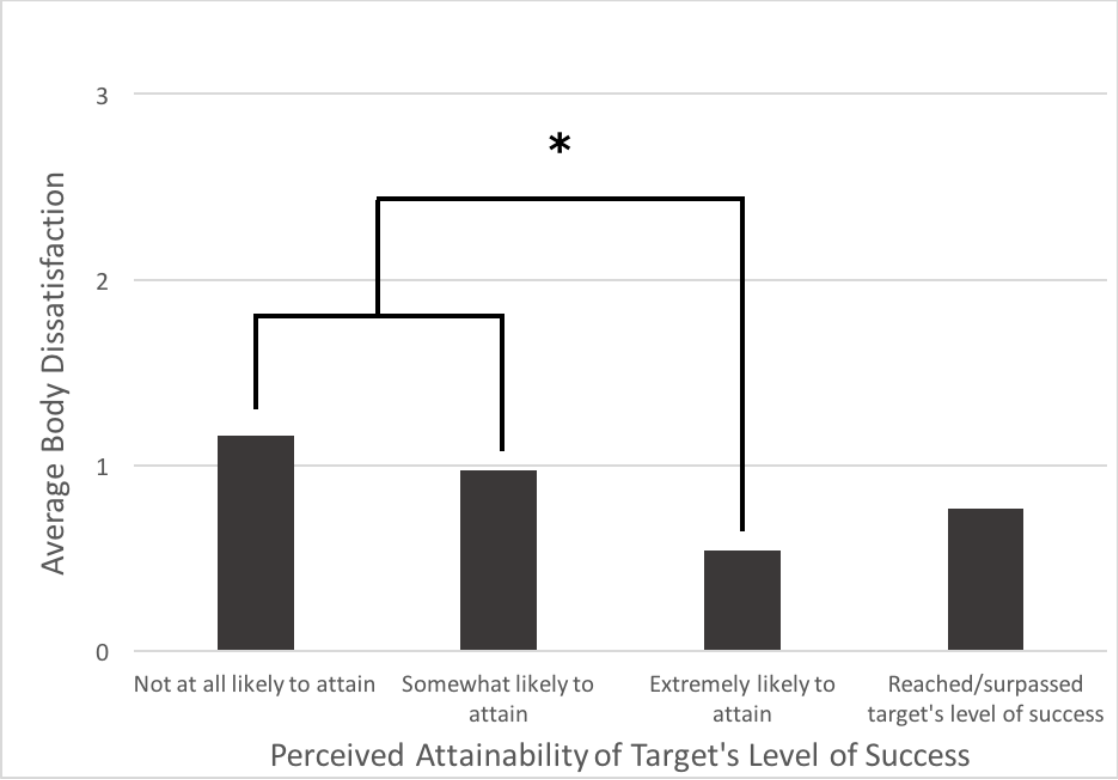

Figure 1. Average body dissatisfaction scores based on the perceived attainability of a target's level of success. Vertical axis represents body dissatisfaction scores, ranging from 0 = "no body dissatisfaction" to 3 = "severe body dissatisfaction". Horizontal axis represents the perceived attainability of a target's level of success. *$p < .05$.

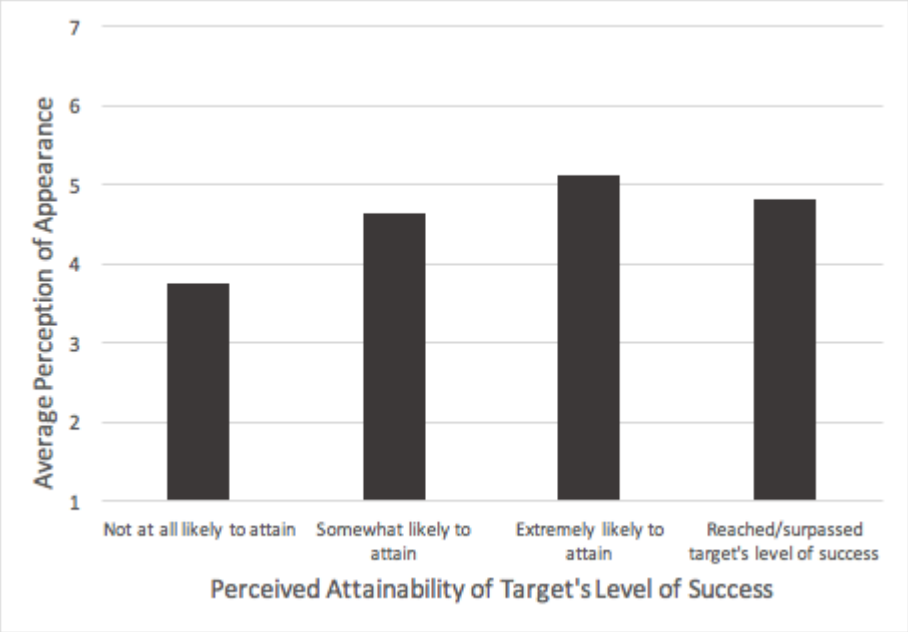

Figure 2. Average appearance scores based on the perceived attainability of a target's level of success. Vertical axis represents body dissatisfaction scores, ranging from 1 = "Very unattractive" to 7 = "Very attractive". Horizontal axis represents the perceived attainability of a target's level of success. No differences were statistically significant.

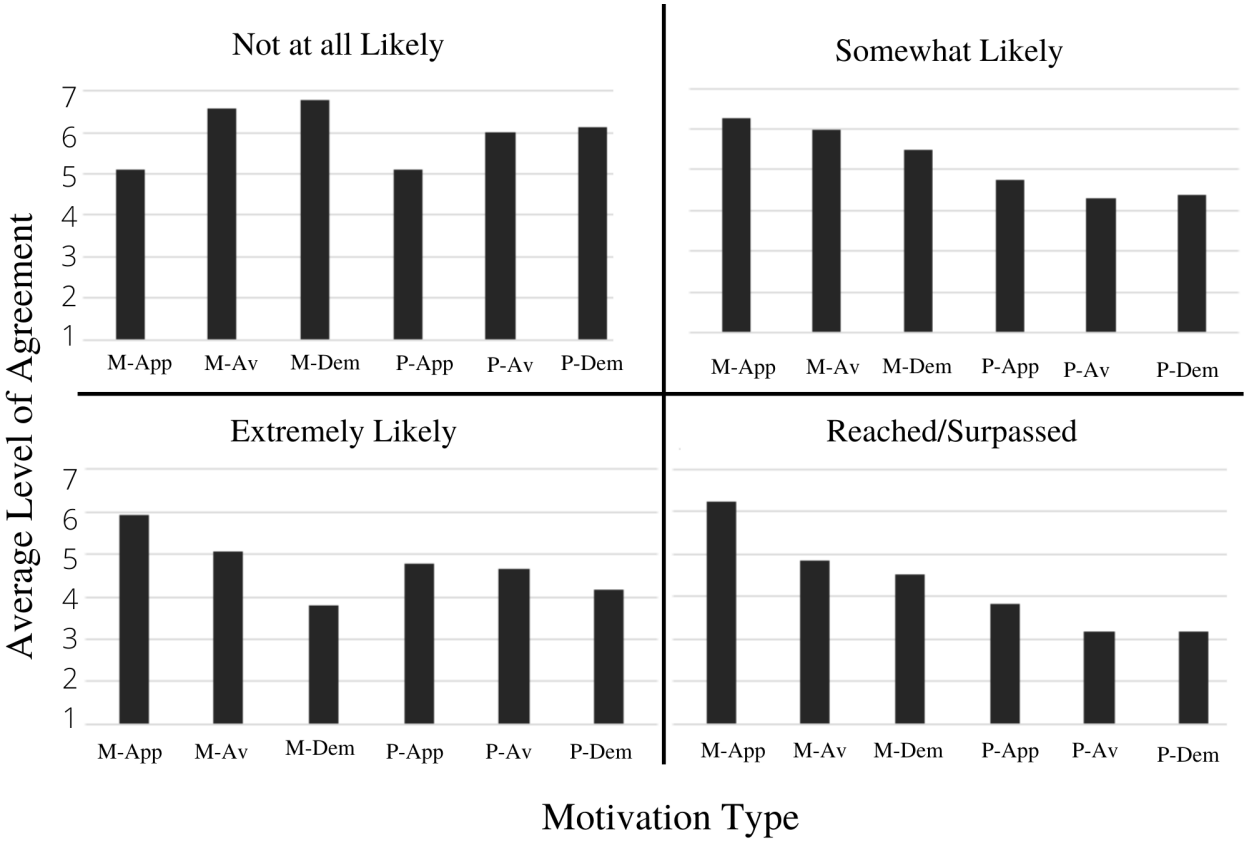

Figure 3. Average level of agreement with items on the AGQ-S by goal attainability. Horizontal axis represents the six different types of motivation. Vertical axis represents participants' level of agreement to items on the AGQ-S, ranging from 1 = "Not at all like me" to 7 = "Completely like me". Bar graphs represent participants who were "not at all likely" to reach their target's level of success, (A) "somewhat likely " to reach their target's level of success (B), "extremely likely to reach their target's level of success (C), and those who had reached or surpassed their target's level of success (D).

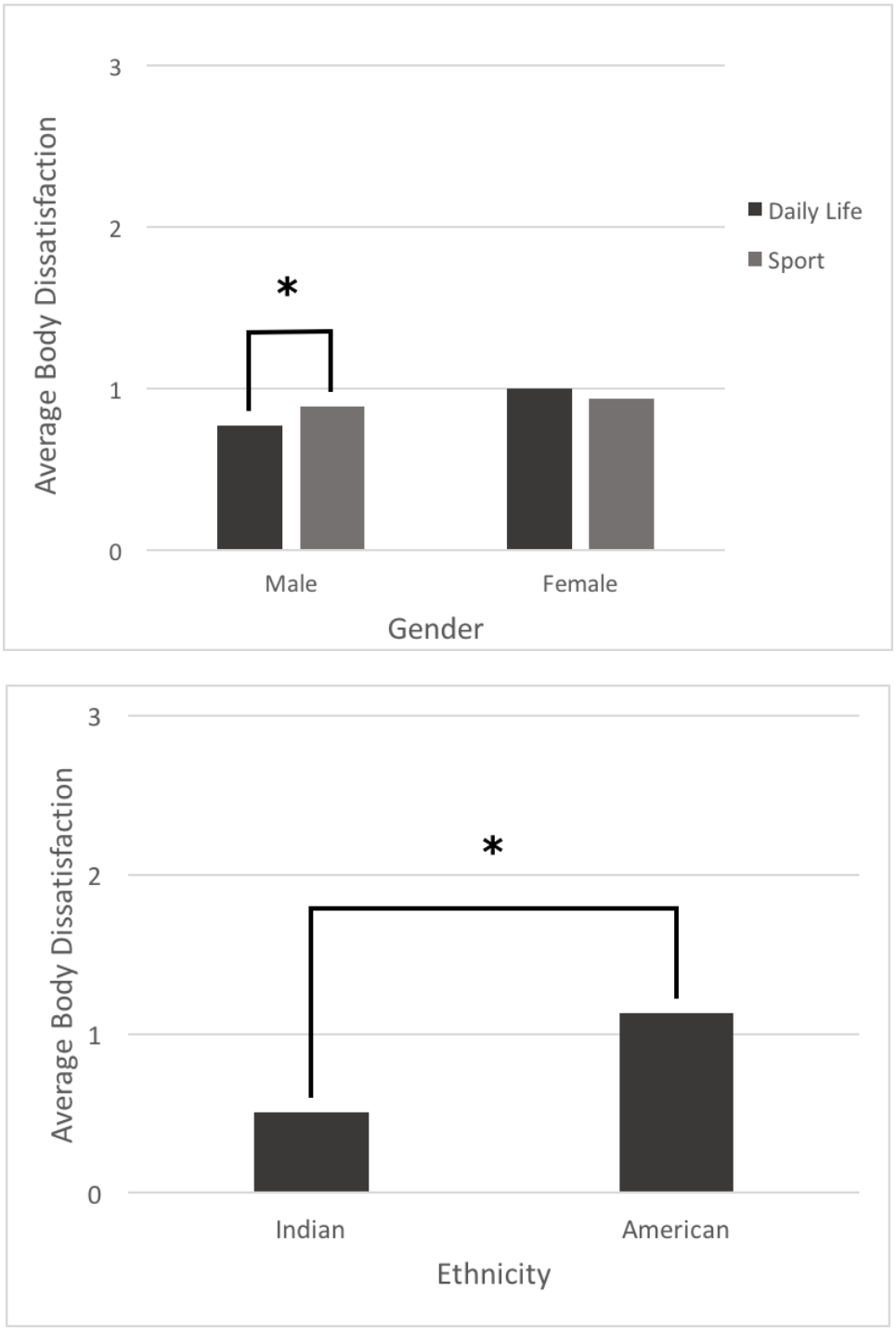

Figure 4. Differences in average body dissatisfaction between gender [top] and ethnicity [bottom], across the contexts of sport and daily life. *$p < .05$.

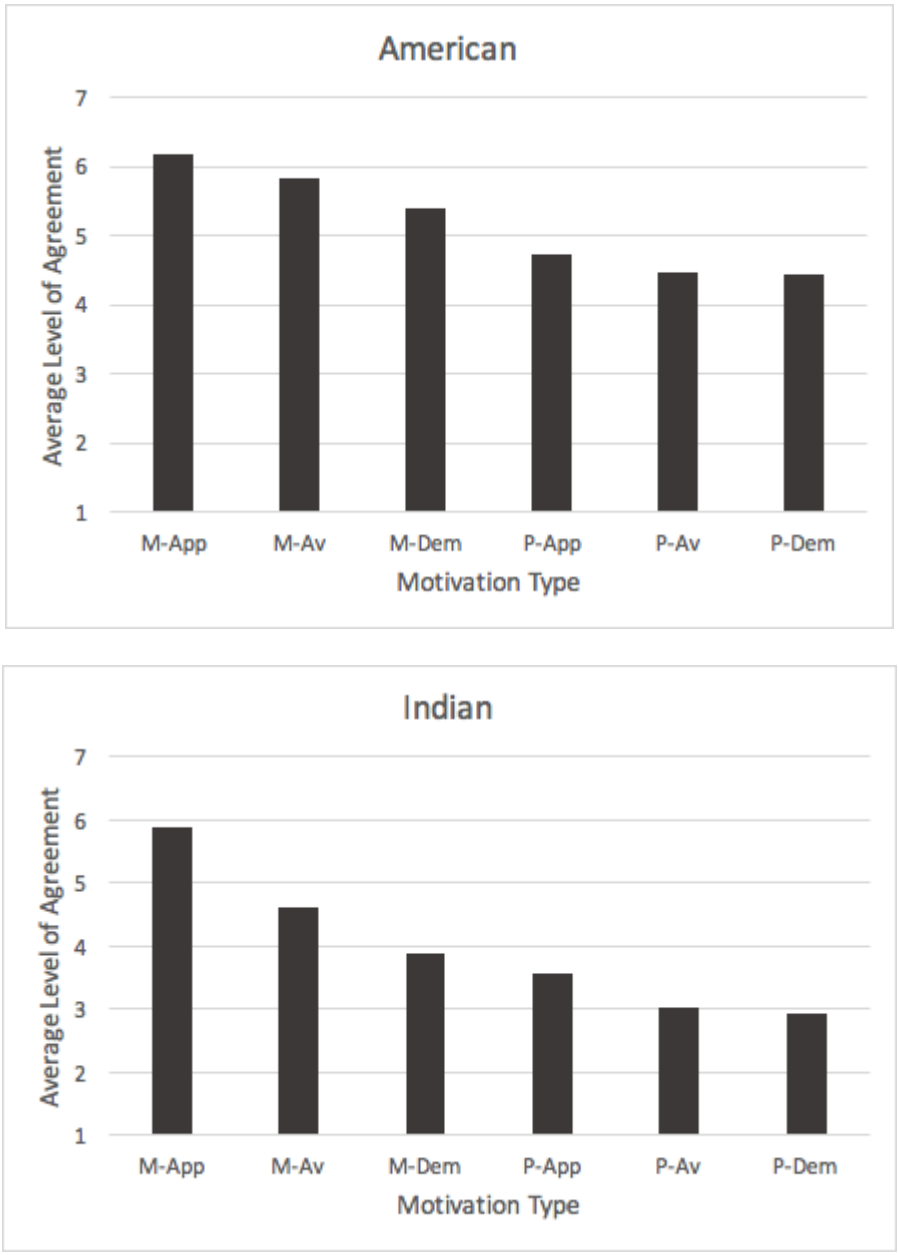

Figure 5. Averagelevel of agreement with items on the AGQ-S among Americans [top] and Indians [bottom]. Horizontal axis represents the six different types of motivation. Vertical axis represents participants' level of agreement to items on the AGQ-S, ranging from 1 = "Not at all like me" to 7 = "Completely like me".

Appendix

Table A

Descriptive Statistics for Body Image

Body Image Item (CBIQA)		Context	Min	Max	M(SD)	Skewness
Appearance*		Sport	1 = Very unattractive	7 = very attractive	4.78(1.35)	-4.70
		Daily Life			4.69(1.39)	-3.17
Body Dissatisfaction	Body Shape	Sport	1 = Much too slim	7 = Much too full	4.61(1.02)	1.00
		Daily Life			4.64(1.03)	0.60
	Body Weight	Sport	1 = Much too low	7 = Much too high	4.48(1.21)	0.69
		Daily Life			4.51(1.12)	1.03
	Fat Percentage	Sport	1 = Much too low	7 = Much too high	4.70(1.05)	1.54
		Daily Life			4.61(.97)	1.64
	Muscularity	Sport	1 = Much too unmuscular	7 = Much too muscular	4.39(1.15)	-3.40
		Daily Life			4.78(1.07)	-1.63
	Body Shape (Recoded)	Sport	0 = No body dissatisfaction	3 = Severe body dissatisfaction	0.83(0.86)	2.73
		Daily Life			0.90(0.83)	2.45
	Body Weight (Recoded)	Sport			0.86(0.96)	2.85
		Daily Life			0.83(0.92)	2.47
	Fat Percentage (Recoded)	Sport			0.90(0.87)	2.23
		Daily Life			0.79(0.83)	2.51
	Muscularity (Recoded)	Sport			1.03(0.67)	1.00
		Daily Life			1.07(0.79)	0.30
	Average Body Dissatisfaction**	Sport			0.91(0.64)	2.22
		Daily Life			0.89(0.64)	2.42

*Log transformed in final analyses to reduce skew.
**Square-root transformed in final analyses to reduce skew.
Note: All body image items excluding appearance were averaged to create a measure of average body dissatisfaction that was used in final analyses (shown in bold).

Table B

Descriptive Statistics for Motivation

Motivation Item (AGQ-S)*	M(SD)	Skewness	Min	Max
Mastery-Approach	6.07(.81)	-3.84		
Mastery-Avoidance	5.33(1.35)	-2.80		
Mastery-Demotivation	4.77(1.62)	-1.83	1 = Not at all like me	7 = Completely like me
Performance-Approach	4.26(1.58)	-1.04		
Performance-Avoidance	3.87(1.74)	0		
Performance-Demotivation	3.81(1.76)	0.93		

*Log transformed in final analyses to reduce skew.

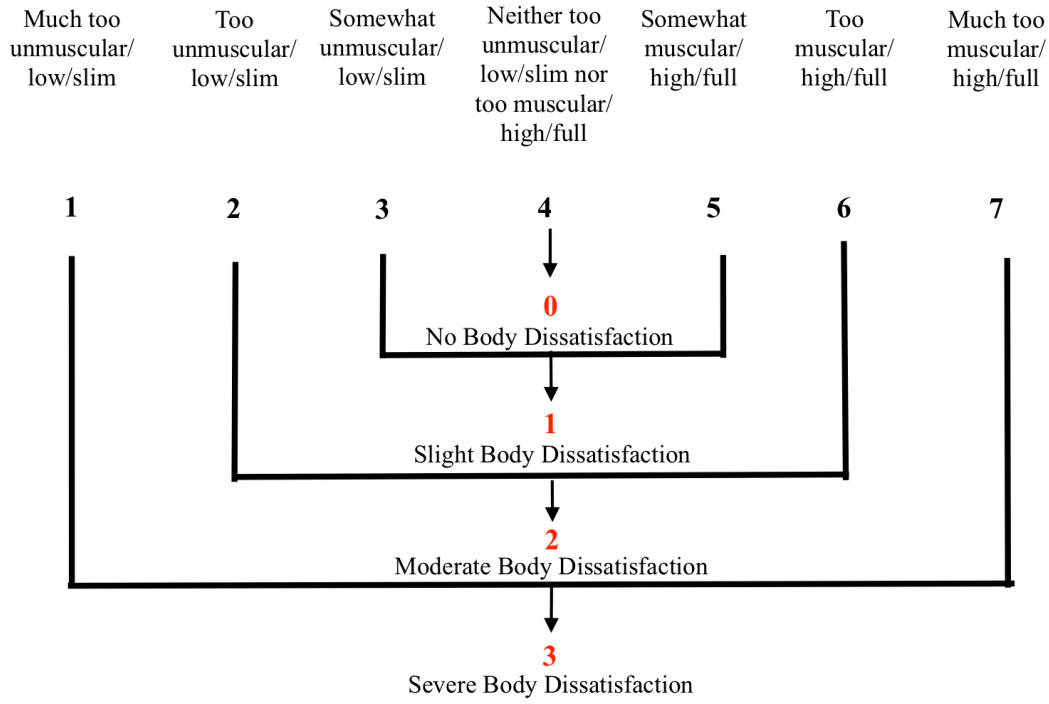

Figure A. Recoding of the body image items on the CBIQA to reflect body dissatisfaction. Recoded values are shown in red.