Stereotype Threat in Sport: Recommendations for Applied Practice and Research

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Abstract

Stereotype threat theory holds that activation of a negative stereotype has a harmful effect on performance in cognitive and motor domains. This paper provides a literature review of stereotype threat research in the motor domain followed by recommendations for sport psychology practitioners. The review discusses the most widespread stereotypes that exist in sport, the effects of stereotype activation on performance in different sports, and mechanisms that explain why stereotype threat decreases performance. Recommendations for practitioners include individual and organizational level approaches, with the former subdivided into interventions aimed at prevention or coping.

Keywords: gender, identity threat, intervention, multiple social identities, race, sport performance

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Introduction

Stereotypes are defined as "beliefs or associations that link whole groups of people with certain traits or characteristics" (Kassin, Fein, & Markus, 2011, p. 148). This definition implies that stereotypes consist of two parts; they link a group (e.g., East Africans) to specific traits and/or performance outcomes (e.g., good at running marathons) by generalizing across group members and neglecting individual differences. Stereotypes are prevalent in performance domains such as academics and sport, and research has demonstrated that negative performance-related stereotypes (e.g., women are not good at soccer) can hinder people's performance in achievement situations (Aronson et al., 1999; Beilock, Jellison, Rydell, McConnell, & Carr, 2006; Spencer, Steele, & Quinn, 1999; Stone, Lynch, Sjomeling, & Darley, 1999). This negative effect of stereotypes on group members' performance in achievement settings is called *stereotype threat* (ST). Since the seminal paper by Steele and Aronson (1995), the detrimental ST effect has been demonstrated in numerous empirical studies, many of which are cited throughout this paper, using cognitive or motor performance tasks.

The effect of ST is insidious in several ways. First, ST can affect performance even without the performer's awareness that a stereotype has been activated (Steele, 2011). That means that even if people do not think about the stereotype on a conscious level, the stereotype can hinder their performance (Levy, 1996; Shih, Pittinsky, & Ambady, 1999). Second, a stereotype can affect performance simply by being known to the performer (Aronson, Quinn, & Spencer, 1998), even if the performer does not believe the stereotype (e.g., Huguet & Régner, 2009). Third, stereotypes can be pervasive, existing ambiently in performance environments (i.e., "in the air"; Steele, 1997). Fourth, although the effects of racial and gender stereotypes

have been more commonly studied than others because gender and race are two of the most important social categories (Macrae & Bodenhausen, 2000), countless other groups are stereotyped, leading to ST. For example, there may be stereotypes associated with sexual orientation, socioeconomic status, disability, illness, age, height, weight, dominant hand or foot, etc., that represent beliefs about a group member's ability to perform in sports. Therefore, addressing ST is an important challenge facing various stakeholders in sport settings, such as athletes, coaches, and sport psychologists.

The central aim of this paper is to inform sport psychologists working with athletes about ST research and identify and recommend potentially effective approaches to reduce the negative effect of stereotypes in sport. In the sections that follow, the literature on ST in sport is reviewed by considering the following questions. First, what stereotypes exist in sport? Second, what happens when people are reminded of stereotypes before or during performance? Third, what mechanisms underlie the effect of ST on performance? To address these questions, this paper focuses on research incorporating motor (e.g., sport) performance tasks, while occasionally drawing from the literature on cognitive (e.g., academic) performance. Following these sections is a section briefly highlighting priorities for future research. Thereafter, the focus of the paper is on recommendations for applied practice in sport.

What Stereotypes Exist in Sport?

There are many stereotypes about various groups in sport. In this paper, we maintain a broad definition of "sport" to include competitive team and individual sports, disabled sport, senior sport, and physical exercise. It is important to note that stereotypes may vary across each of these subtypes of sport, specific sports, and even for different specialties within a sport. For example, in track and field, stereotypes may suggest that White athletes are better suited to long-

distance running than sprinting. Stereotypes may also be context-specific, existing in particular cultures or geographic locations. For example, two stereotypes common in the United States are the innate athletic superiority of the Black athlete and the superior "sport intelligence" of the White athlete. These stereotypes were apparent in the way people evaluated an athlete's behavior in a study by Stone, Perry, and Darley (1997). In this study, participants listened to a fictional narrative of a basketball player's performance. There were two versions of the narrative that differed in only one way – that is, the player was identified as Black in one version, as White in the other version. Listeners rated the fictional athlete as playing a better game and demonstrating more athletic ability if identified as Black, but as showing greater basketball intelligence and effort if identified as White.

As mentioned earlier, gender stereotypes also exist in sport, but they vary across different contexts. In general, evidence of a widespread stereotype of the natural athletic superiority of men compared to women – and in particular, how this stereotype is strengthened by differences in media coverage for men's and women's sports – is apparent in a number of sociology studies (e.g., Knight & Giuliano, 2001; Koivula, 1999; Wensing & Bruce, 2003). In addition, in particular countries or cultures, certain sports are considered more or less masculine compared to others. For example, in a study conducted in Germany by Martiny et al. (2015), participants perceived soccer and basketball to be "men's sports" to a significantly greater extent than volleyball and field hockey. Moreover, participants rated the idea that men have greater ability in soccer or basketball as more widespread than the idea that men have greater ability in volleyball, field hockey, or sport in general.

As mentioned in the introduction, beyond race and gender, many other groups may be stereotyped. Some stereotypes relate to athletes' country or region of origin, for example, the

superiority of East African runners (Baker & Horton, 2003) and the superiority of Germans and inferiority of Dutch and English at scoring soccer penalty kicks (Jordet, 2009). In some cases, stereotypes may target more than one group a person belongs to such as both gender and sexual orientation. For example, the notion of certain sports (or sport in general) as masculine, combined with the stereotype that lesbians are masculine, may lead to the stereotype that women who participate in sport are masculine and/or lesbians (Kauer & Krane, 2006). In disability sport, one stereotype is that of the "supercrip," a narrative that casts disabled athletes as conquerors of their tragic impairments. The supercrip stereotype implies that disabled persons can and should be able to overcome their disability if they fight hard enough, and therefore those who do not achieve success in disabled sport are not fighting hard enough (Silva & Howe, 2012). Considering the many stereotypes highlighted in this section, a large proportion of athletes may be susceptible to the negative consequences of ST whenever they are reminded of stereotypes pertaining to their own groups (i.e., *ingroup* stereotypes) in performance settings.

What Happens When Performers are Reminded of Stereotypes?

Numerous experimental studies have examined the effect of ST on performance in the cognitive domain (Aronson et al., 1999; Harrison et al., 2009; Schmader & Johns, 2003; Spencer et al., 1999; Steele, 1997; Stone, Harrison, & Mottley, 2012) and motor domain (Beilock et al., 2006; Chalabaev et al., 2013; Chalabaev, Sarrazin, Stone, & Cury, 2008; Heidrich & Chiviacowsky, 2015; Hermann & Vollmeyer, 2016; Hively & El-Alayli, 2014; Krendl, Gainsburg, & Ambady, 2012; Martiny et al., 2015; Stone et al., 1999; Stone & McWhinnie, 2008). Typically, in these studies, ST is activated by making participants in the experimental group aware of a stereotype related to their group membership. Subsequent task performance is

then compared against that of participants in a control group, who were not made aware of the stereotype.

Research has shown that stereotypes can be activated in different ways. In some studies, ST is induced blatantly, for example, by explicitly telling the participants that men tend to outperform women on the task (e.g., Hively & El-Alayli, 2014; Stone & McWhinnie, 2008). Sometimes the experimental manipulation is done in a more subtle way. For example, a stereotype can be activated by making people think about a specific group they belong to before performing on a task. In research this has mostly been done by including questions about participants' group membership related to the stereotype within a questionnaire administered before the performance task (e.g., Harrison et al., 2009; Martiny et al., 2015; Shih et al., 1999; Stone, Chalabaev, & Harrison, 2012). Another example of subtle activation involves stating that the task is diagnostic of an attribute commonly known to be stereotyped (e.g., natural athletic ability; Chalabaev, Sarrazin, et al., 2008; Stone et al., 1999), without explicitly linking the attribute to the stereotyped identity group. Yet another example of a subtle cue used to activate a stereotype is to utilize the race, gender, etc. of the experimenter, as in Stone and McWhinnie (2008), a study which incorporated both blatant and subtle activation. Taken together this means that stereotypes can be activated by a broad variety of situational cues. Recalling that stereotypes consist of two parts, a group part and a trait part, these cues can either target just one of the two parts of the stereotype (subtle activation) or both of them (blatant activation).

Short-term Effects of Negative Stereotypes

Several studies have examined the ST effect using widespread stereotypes from sport outlined in the previous section. For example, the stereotypes about Black athletes' natural ability and White athletes' sport intelligence were experimentally manipulated in a classic study

by Stone et al. (1999). In this study, a golf putting task was framed as a measure of either natural athletic ability or sport intelligence. White participants performed worse than controls when led to believe that the task measured natural athletic ability, while Black participants performed worse than controls after they were told that the task was a measure of sport intelligence.

The ST effect associated with the stereotype that women are athletically inferior to men has been examined in studies such as Hively and El-Alayli (2014) and Stone and McWhinnie (2008). Both of these studies incorporated a threat condition, in which the performance task was framed as a test of natural athletic ability that would reveal gender differences. In the former study, which included university women's and men's basketball and tennis athletes, women performed worse than men in the threat condition, but not in the "no threat" condition (Hively & El-Alayli, 2014). In the latter study, women in the threat condition performed worse than women in control groups who instead were told that the task was a test of psychological factors or would reveal racial differences (Stone & McWhinnie, 2008). Some studies have investigated the ST effect by activating a negative stereotype in women performing soccer dribbling tasks in France (Chalabaev, Sarrazin, et al., 2008) and Germany (Hermann & Vollmeyer, 2016; Martiny et al., 2015). Participants performed worse, compared to controls, when led to think that the task was used to measure athletic ability or technical soccer ability (Chalabaev, Sarrazin, et al., 2008) or after the stereotype "females are bad at soccer" had been blatantly activated (Hermann & Vollmeyer, 2016).

There exist many more examples of studies demonstrating harm to performance after the activation of a negative stereotype, both in the cognitive domain (Aronson et al., 1999; Schmader & Johns, 2003; Spencer et al., 1999; Steele, 1997) and motor domain (Beilock et al., 2006; Chalabaev et al., 2013; Heidrich & Chiviacowsky, 2015; Krendl et al., 2012). The sum of this

evidence suggests that cues in a real-world sporting context, broadly defined, may activate negative stereotypes and contribute to underperformance of stereotyped group members. For example, soccer players may hear their coach shout "Let's go, ladies!" or "Come on, let's play smart!" Although seemingly harmless, the first message reminds female soccer players of their group (e.g., ladies) which in the specific achievement situation (i.e., in a soccer match) is associated with negative stereotypes about women's soccer playing ability. The second one contains a trait element (i.e., playing smart) that might remind African-American soccer players of the negative stereotype about their sport intelligence. Thus, either of these messages may be enough to remind the athletes of negative stereotypes and thus decrease their performance.

Long-term Effects of Negative Stereotypes

Although the experimental studies cited above have revealed a temporary effect of ST on performance, the long-term impacts of ST have been posited in the general literature on ST, but have been investigated very little in the context of sport. For example, it has been suggested that performers chronically exposed to ST, in order to preserve self-worth, may begin to identify less with the domain (Steele, 1997), withdraw effort (Stone, 2002), and ultimately drop out from the sport (Baker & Horton, 2003; Stone et al., 2012). For example one of the few studies in sport showed that withdrawal of practice effort was reported by Stone (2002). In this study, White and Hispanic athletes were given the opportunity to practice before a golf putting task said to be a test of natural athletic ability. Whereas athletic ability represents a negative cultural stereotype about White athletes, neither a positive nor a negative association exists in terms of Hispanic athletes' ability (Stone, 2002). Consistent with Stone's hypothesis, in the presence of the "athletic ability" stereotype, the White athletes practiced less than the Hispanic athletes. Stone suggested that "in a sports context, withholding practice effort appears to be a useful strategy for

creating ambiguity about the meaning of a poor performance when perceptions of self-worth are on the line" (p. 1669). From numerous studies in the cognitive domain, we know that activating negative stereotypes in achievement situations can decrease a person's attachment to, and engagement in, the domain (e.g., Hall, Schmader, & Croft, 2015; Holleran, Whitehead, Schmader, & Mehl, 2011; Woodcock, Hernandez, Estrada, & Schultz, 2012). This means that experiencing ST impairs the relationship between the threatened person and the targeted domain, and has negative psychological consequences such as reduced feelings of acceptance and belonging to the domain (e.g., Good, Rattan, & Dweck, 2012; Hall et al., 2015; Walton & Cohen, 2007). Thus, repeated exposure to negative stereotypes and chronic experiences of ST might be one explanation why in many countries males participate more in organized sport clubs than females (e.g., Van Tuyckom, Scheerder, & Bracke, 2010) and why more girls quit organized sport during adolescence than boys (Dumith, Gigante, Domingues, & Kohl, 2011).

Effects of Positive Stereotypes

Gaining information about the standing of one's own group within a specific domain always implies a social comparison process (i.e., the ingroup is compared to a specific outgroup on a relevant comparison dimension; social identity theory, Tajfel & Turner, 1979). Thus, if one group is evaluated as not doing well (e.g., women aren't good at playing soccer), this inevitably implies that there is another group which does better (e.g., men are good at playing soccer). This means that whenever people are reminded of a stereotype, a negative stereotype is activated for one group (e.g., female soccer players), but a positive stereotype is activated for another group (e.g., male soccer players). Research shows that when a person is reminded that others are negatively stereotyped (i.e., a negative outgroup stereotype), through social comparison to the denigrated group, that person's performance may be heightened (Chalabaev, Stone, Sarrazin, &

Croizet, 2008; Froehlich, Martiny, Deaux, Goetz, & Mok, 2016; Laurin, 2013). This is known as *stereotype lift* (Walton & Cohen, 2003). An example of activation of a negative outgroup stereotype would be if a group of women in an exercise class were told by the instructor, "Men really struggle with this exercise because they're not as flexible." Stereotype lift was demonstrated with a balancing task in a study by Chalabaev et al. (2008). Participants who were made to think the opposite gender was at a disadvantage performed better, compared to a control group given no gender information.

Related to this, research has also shown that reminding people of positive stereotypes about their groups (i.e., a positive ingroup stereotype) can lead to improvement in performance (Shih et al., 1999; Shih, Ambady, Richeson, Fujita, & Gray, 2002). This is called *stereotype boost*. An example of this would be Asian persons reminded about their race before taking a math exam, evoking the stereotype "Asians are good at math".

Taken together, in this section, we outlined short- and long-term effects of negative stereotypes and consequences of positive stereotypes. Considering the robust evidence that ST has a short-term impact on performance, researchers have aimed to illuminate its underlying psychological mechanisms. These are thought to depend on the type of task (cognitive or motor) and other aspects of the performance setting. These topics are addressed in the next section.

What Explains the Effect of Stereotype Threat on Performance?

In this section, we will not give an exhaustive overview of all research that has been conducted on the psychological processes that might underlie the ST effect in the cognitive and motor domain. Rather, we will focus on three general categories of mechanisms that have been most commonly investigated in sport settings: emotions, attention, and motivation. Before doing so, we need to mention that research has also identified factors that make it more or less likely

for ST effects to occur. In general, a core idea from ST theory suggests that ironically ST most affects performers who are strongly invested in their performance domain (Aronson et al., 1999; Spencer et al., 1999; Steele, 1999; Steele & Aronson, 1995; Stone et al., 1999) and who feel closely connected to the stereotyped group (Schmader, 2002). That is, the more important the performance situation is to performers, the more their performance is likely to be harmed by ST (see, e.g., Mok, Martiny, Gleibs, Deaux, & Froehlich, 2017). For this reason, high-performing athletes should be especially hampered by negative stereotypes, as performance situations and their performance outcomes are particularly important to them.

Emotions

According to the well-known "integrated process model of stereotype threat effects" developed by Schmader, Johns, and Forbes (2008), negative thoughts, negative emotions, and appraisal processes are the most important processes underlying ST effects. In the sport domain, researchers have mostly focused on the role of anxiety, although there is limited evidence for the role of anxiety in the cognitive domain. It is thought that when exposed to a stereotype, anxiety derives from the fear that others will attribute failure to the performer's group membership, and thus the individual's low performance will confirm the negative group stereotype (Schmader & Beilock, 2012). Martiny et al. (2015) leveraged the idea that individuals belong to different groups and investigated whether the effect of cognitive anxiety could be lessened by activating a positively stereotyped group membership (i.e., member of a sports team) in addition to a negatively stereotyped group membership (i.e., female). For subjects in the single identity group, only the female identity was activated, while in the dual identity group, both the female and sports team identities were activated. Although there was no difference in cognitive anxiety reported by the dual and single identity groups, in terms of performance, high cognitive anxiety

was associated with lower shot accuracy in the single identity group, but not in the dual identity group. Martiny et al. (2015) suggested that activating a positive identity nullified the negative effect of cognitive anxiety on performance by changing the athletes' interpretation of failure (e.g., from "women simply are not good at this" to "even the best players miss sometimes"). Although anxiety appears to play a role in ST, it is too simplistic an explanation on its own, according to Schmader and Beilock (2012), who maintain that ST is a complex phenomenon involving both cognitive and affective processes.

Attention

Related to negative emotions, a sense of uncertainty, which is triggered by negative stereotypes, contributes to the decrease in performance when experiencing ST (Schmader & Beilock, 2012). This sense of uncertainty leads to increased vigilance (i.e., attention) toward threat-related cues such as detecting biased others (e.g., teachers, coaches, officials, peers), monitoring one's behavior for mistakes, and identifying other examples of bias in the environment (Forbes, Schmader, & Allen, 2008; Schmader & Beilock, 2012; Steele, Spencer, & Aronson, 2002). Thus, the uncertainty can lead to *explicit monitoring*, that is, either monitoring the environment for stereotype-related cues or monitoring one's own performance for mistakes. In the sport domain, it often means that performers direct conscious attention to the steps of executing a well-learned, automatic skill. Because high-level motor skills are thought to become proceduralized with practice, or automatized, this increased attention to proceduralized task control can negatively influence performance because it disrupts the otherwise fluent, automatic execution of the behavior (Baumeister, 1984; Beilock et al. 2006; Langer & Imber, 1979). A series of experiments activating ST before a golf putting task yielded evidence for the explicit monitoring explanation for ST by showing that its effect could be nullified by directing

performers' attention to a secondary task (e.g., listening to a list of random words read out loud; Beilock et al., 2006). In other words, having performers attend to task-irrelevant cues actually eliminated the harmful effect of ST by distracting their attention away from the step-by-step execution of a task that should flow automatically. Similarly, Gucciardi and Dimmock (2008) supported the explicit monitoring explanation, finding that under high anxiety conditions golfers attending to task-relevant technical process cues performed poorly compared to those attending to task-irrelevant or holistic "swing" cues. In sum, reminding performers of negative stereotypes in achievement situations in sport increases explicit monitoring of their behavior, which can lead to reduced performance (but see Chalabaev et al., 2013, for conflicting evidence).

Motivation

In addition to the model developed by Schmader et al. (2008), different motivational approaches of explaining the processes underlying ST have been presented. These motivational approaches suggest that whereas some people are motivated by a desire to outperform others (performance-approach goal; promotion focus), other people try to avoid performing worse than others (performance-avoidance goal; prevention focus; e.g., achievement goal theory by Elliot & Church, 1997; regulatory focus theory by Higgins, 2000). Importantly, on which approach a person focuses is also influenced by situational variables (e.g., how the task is framed). For example, a task can either be framed as identifying failure (identify below average ability) or as identifying success (identify above average ability; Chalabaev, Dematte, Sarrazin, & Fontayne, 2014). The motivational theories argue that while reminding people of negative stereotypes triggers the goal to avoid failure, the tasks used in most studies testing ST are tasks that trigger the goal to do well (approach success). Thus, there is a mismatch between performers' regulatory focus (negative stereotype or prevention focus vs. positive stereotype or promotion

focus) and the outcome structure of the task (losses vs. gains; Grimm, Markman, Maddox, & Baldwin, 2009). Some empirical evidence for this approach exists. For example, a study by Chalabaev et al. (2014) looked at the effect on junior high school students' performance on a soccer dribbling task after provoking either a performance-avoidance context (by telling the students that the task would be used to identify below average ability) or a performance-approach context (by telling the students that the task would be used to identify above average ability). Among girls in the control group and boys in general, the performance-avoidance context resulted in poorer performance on the task, suggesting that performance-avoidance goals may be generally worse for performance than performance-approach goals. However, interestingly, the opposite was observed in girls reminded of a negative stereotype (told that the study would examine differences between girls and boys). That is, they actually performed better in the performance-avoidance context than in the performance-approach context. Although these results are counterintuitive, they are consistent with regulatory focus theory.

In sum, the ways in which ST affects performance are complicated, and research on the mechanisms of ST is ongoing. Emotions, attention, and motivation all appear to play a role. However, which process is the most important one seems to depend on the specifics of the performance tasks and the situation the stereotyped performer is in.

Recommendations for Research

Although a growing body of research has investigated ST in sport and has consistently found that negative stereotypes can hinder athletes' performance, more research is needed to more thoroughly understand how ST operates in the domain of sport and how to intervene effectively. First, research has not yet addressed the question of whether athletes experience and endure ST in a way that is stable over time (i.e., chronic), as opposed to the momentary way it

has been activated in most experimental studies. Efforts to answer this question, including longitudinal designs, will help us better understand the long-term effects of ST in sport. Second, more research is needed to help explain what differentiates individuals who are able to overcome ST. For example, do some individuals actually perform better under ST conditions, and if yes, why is this the case? Why are some athletes prone to withdrawing effort, while others redouble their efforts? Crucially, what other variables predict observed differences? More studies examining the predictors of athletes' susceptibility to ST are needed to inform the design of both individual and organizational level interventions. Third, as most research to date has focused on race and gender in competitive team and individual sports, studies encompassing other important social groups (e.g., age, illness, obese/overweight status, sexual orientation, etc.) that are negatively stereotyped in sport are needed. For example, we found only two studies investigating the effect of age-based ST on performance in physical tasks in seniors, with one finding an effect (Swift, Lamont, & Abrams, 2012) but not the other (Horton, Baker, Pearce, & Deakin, 2010). Although these studies used physical (motor and strength) tasks, participants were from the general population, not from senior sport. Fourth, more interventions need to be rigorously evaluated through quantitative and qualitative approaches to understand both their short-term and long-term effects. This includes, for example, interventions that have shown initial promise with athletes prone to choking under pressure (e.g., mindfulness; Hussey, 2015). Tailoring interventions to particular identity groups, sports, and task types is also an important consideration for future research.

Recommendations for Applied Practice

Interventions aimed at eliminating the harm of ST can be categorized broadly as prevention or coping (Schmader & Beilock, 2012). In this section, approaches within each

category are highlighted. Although prevention and coping can encompass both individual and organizational level strategies to some degree, some approaches that reside more firmly on a systemic or organizational level are discussed under a separate subheading.

Preventing Stereotype Threat for Individuals

Also called threat inoculations, some of the recommended approaches for preventing ST include skill learning aimed at preventing choking under pressure (Hill, Hanton, Matthews, & Fleming, 2010), stereotype/attitude retraining (Forbes & Schmader, 2010), and emphasizing the complexity of the athlete's self-concept (Schmader & Beilock, 2012).

Skill learning strategies. Skill learning strategies recommended to prevent choking under pressure (see, e.g., Baumeister & Showers, 1986) may be useful to prevent ST effects, because similar psychological processes – fear and uncertainty about performing well – are taking place in both situations. One such approach is called implicit learning, which involves learning a motor skill without explicit step-by-step or rule-based knowledge (Masters, 1992). Another approach is analogy learning, which uses biomechanical metaphors to teach motor skills in a more holistic manner (e.g., "To hit a tennis backhand, move your arm as if throwing a Frisbee"; Masters, 2000). Both approaches aim to minimize learning skills through step-by-step procedures, details which, if attended to by the athlete, may undermine performance according to explicit monitoring theory. Indeed, studies have shown that experienced golfers performed better at putting when they attended to task-irrelevant or task-holistic cues instead of task-process cues (Beilock et al., 2006; Gucciardi & Dimmock, 2008). Based on this evidence, we recommend that practitioners employ skill learning methods that direct athletes' attention away from task-process cues toward more task-holistic or task-irrelevant cues. One example of this would be to train athletes to use task-holistic self-talk (e.g., the word "swing" before a golf putt).

Another example would be to train athletes to focus their attention on the environment instead of the task (e.g., during a basketball jump-shot or free throw, focus on the back of the rim instead of thinking about the shooting technique).

Stereotype and attitude retraining. Stereotype and attitude retraining have been used in the context of academic performance to increase cognitive capacity and motivation under conditions of ST (Forbes & Schmader, 2010). Stereotype retraining involves training performers to make a counterstereotypic association (e.g., Black athletes believing they have sport intelligence, women believing they have natural athletic ability). Attitude retraining involves orienting the performer to positive attitudes toward a performance domain or task. Forbes and Schmader (2010) found that women trained to have a more positive attitude toward math showed increased motivation toward the domain, and women trained to associate their gender with high math ability increased in their working memory capacity. Athletes may have an overall positive attitude toward their sports, but may have negative inclinations toward specific tasks within their sports (e.g., playing defense, shooting free throws, taking penalty kicks, serving, etc.). Negative attitudes toward specific performance tasks may emanate from stereotypes and may affect performers' motivation to practice (Stone, 2002). Although most of the evidence supporting stereotype and attitude retraining is from research in the cognitive domain, it is reasonable to suggest that these approaches may help to prevent the effects of ST more broadly, including with athletes.

Athletes' complex identities. The practical value of emphasizing the complex self-concepts of athletes is demonstrated in studies of multiple social identities – that is, having membership in multiple groups - where activating a positive social identity, in the presence of a negative stereotype, effectively nullified the ST effect (Martiny et al., 2015; Rydell, McConnell,

& Beilock, 2009). While most ST research has focused on race and gender, identities that are more domain-specific or subgroup-specific may also be subject to either negative or positive associations. The following example of this is offered by Beilock and McConnell (2004). In baseball, there is a stereotype that left-handed pitchers struggle when facing right-handed batters. Therefore, a Major League Baseball pitcher may experience ST if he is reminded of his left-handedness before facing a right-handed batter. Alternatively, he may be protected from ST, or experience stereotype boost, when reminded of his identity as a Cy Young Award winner. Sport psychologists should consult with both coaches and athletes to ensure that messages in the competitive context (e.g., mantras, rallying cries, pep talks, and self-talk) focus on positive identity associations. An important caveat is warranted here – we are not advocating for an approach that would involve promoting positive stereotypes (e.g., "Black athletes are more talented"). Not only do we maintain that stereotypes are generally unproductive to society, there is also a great deal of evidence that positive stereotypes can sometimes harm performance by creating a burden to live up to (e.g., Cheryan & Bodenhausen, 2000).

Another strategy that reminds people that they themselves and others are more complex than being a representative member of one single social group is the concept of subgrouping. Subgrouping is defined as "the perceiver's organization of information in terms of clusters of individuals based on their similarities and differences" (Richards & Hewstone, 2001, p. 52). Thus, different from the above idea of reminding people of several positive group memberships, in the case of subgrouping, people split existing groups into smaller groups based on their similarities. For example, instead of thinking about women in general, several subgroups can be addressed such as female soccer players, business women, single moms, etc. Research has shown that subgrouping can weaken stereotypes (e.g., Rothbart & John, 1985) because

perceivers realize that within groups, individual group members have specific similarities and differences that makes it possible to categorize them into several smaller groups. Thus, the representation of the stereotyped target group becomes more differentiated, which ultimately weakens stereotypes (Richards & Hewstone, 2001).

Helping Individuals Cope with Stereotype Threat

Efforts recommended to increase performers' ability to cope with ST include viewing stereotyped constructs as malleable (Froehlich et al., 2016; Stone et al., 2012), creating transparency about ST (Cohen, Purdie-Vaughns, & Garcia, 2012; Stone et al., 2012), reappraising the meaning of anxiety (Martiny et al., 2015), and reappraising threats as challenges (Chalabaev, Major, Cury, & Sarrazin, 2009).

Incremental view of performance. It is paramount to endorse the notion that often stereotyped performance attributes such as athletic ability, sport intelligence, coordination, agility, and technical ability are malleable, not fixed (Froehlich et al., 2016; Stone et al., 2012). In other words, it is important to emphasize an *incremental view* of performance. This means that sport psychologists and coaches should give athletes feedback that focuses on effort and process (e.g., "Great job, the effort you put into your preparation paid off" or "We're putting together a training program to make your balance, agility, and speed even better") instead of natural, innate talent (e.g., "Great job, you truly are a gifted athlete" or "It's okay that you aren't the most technical player because your pace and power makes up for it"). Owing to the fact that many aspects of a person's identity (race, gender, etc.) are set from birth, performance stereotypes are inherently composed of attributions that are not able to change (i.e., *stable*) and outside of the person's control (i.e., *uncontrollable*). Stable and uncontrollable attributions are known to be demotivating and related to learned helplessness (Abramson, Seligman, & Teasdale,

1978). For example, the "Black athletes lack sport intelligence" and "women lack natural athletic ability" stereotypes imply to athletes of these identity groups that these are simply limitations that they should accept. Educating students about malleable intelligence has been an important step in debunking myths perpetuated by stereotypes and closing achievement gaps in some schools in the United States (Blackwell, Trzesniewski, & Dweck, 2007; Cohen et al., 2012). Similarly, getting athletes to endorse an incremental view of their athletic attributes would be an important step in coping with ST effects, for example, by countering the withdrawal of effort sometimes observed in performers exposed to ST.

Transparency about stereotype threat. Making the causes and effects of ST transparent to athletes may empower them to overcome its potentially harmful outcomes (Cohen et al., 2012; Stone et al., 2012). Some of the studies cited in earlier sections suggest that subtly introduced stereotypes can create a sense of ambiguity about whether a performance scenario was biased, and result in more negative outcomes compared to when stereotypes are activated in a more transparent way. Similarly, raising athletes' awareness of ST can empower them to resolve possible uncertainties about whether and how their social identities may be related to performance. Moreover, education about the processes and consequences of ST would give athletes (1) the foundation to reflect on the role of ST in their own performances; (2) the vocabulary to discuss ST with coaches, teammates, and sport psychologists; and (3) the insight to identify and confront ST when it surfaces. Regarding items 1 and 2, it has been suggested that reflecting and discussing ST can buffer its effect (e.g., Johns, Schmader, & Martens, 2005). Regarding item 3, an example of this might involve a basketball player realizing that she is withdrawing from practicing free throws due to a negative ingroup stereotype about free throw ability. Knowing that this phenomenon of withdrawing effort has been identified by research

(e.g., Stone, 2002) would help the player understand that this is a natural response, enable further conversation with a coach or sport psychologist, and ultimately help the player overcome the effect. The possibility for open communication between athletes and sport psychologists about ST would also help the latter to better understand how athletes experience ST in real life. Because most experimental studies induce stereotypes in a controlled, perhaps artificial way, it would be advantageous if sport psychologists are able to gain insight, directly from their consultations with athletes, into how and when stereotypes become relevant in real-life practice and competitive settings.

It is further recommended that not only athletes, but also coaches and other staff, receive education about ST. Feltz, Schneider, Hwang, and Skogsberg (2013) investigated student-athletes' susceptibility to ST in the context of intercollegiate athletics. As performers in this setting are both students and athletes, they may be exposed to the "dumb jock" stereotype in their academic roles in addition to stereotypes about their sport performance. The findings of Feltz et al. (2013) suggest that coaches' attitudes influence athletes' ST susceptibility. These authors recommend programming within intercollegiate athletics departments to educate coaches about ST. Educating coaches about ST would empower them to avoid exacerbating ST, for example, by unintentionally activating negative stereotypes. Moreover, it would enable coaches to join in other prevention and coping efforts. We emphasize the need for training on ST to be thorough (e.g., not just a one-time mandatory workshop) and in line with best practices for training on implicit bias and stereotypes. A number of approaches such as stereotype negation word association training (Kawakami, Dovidio, Moll, Hermsen, & Russin, 2000), keeping journals of incidents of personal bias (Rudman, Ashmore, & Gary, 2001), and workshops on cultural

sensitivity (Jackson, Hillard, & Schneider, 2014) have been demonstrated to reduce bias and stereotypes toward gender and race groups.

Reappraising negative feelings. Performers who reappraise negative feelings in a more positive way, under anxious arousal, have been shown to outperform those low in reappraisal (Schmader, Forbes, Zhang, & Mendes, 2009; Schuster, Martiny, & Schmader, 2015). Chalabaev et al. (2009) reported that participants whose physiological response reflected a challenge appraisal outperformed those whose physiological response reflected a threat appraisal. Performers who reframe their negative feelings tend to interpret the conditions that engender anxiety as challenges rather than threats. Reappraising the interpretation of anxiety was an important outcome of the study by Martiny et al. (2015). These authors suggested that activating a positive social identity (e.g., member of a high-level competitive team) allowed performers to reinterpret the possibility of failure in a way that negated the effect of cognitive anxiety on performance. Sport psychologists should support athletes with methods for coping with negative feelings during performance, in particular how to change threat appraisals to challenge appraisals under anxious arousal. For example, athletes should be trained to monitor and reframe their emotions, thoughts, and self-talk; see Zinsser, Bunker, and Williams (2006) for a detailed review of techniques.

Organizational Level Approaches

Ideas for organizational level ST interventions can be gleaned from approaches that have successfully closed race and gender achievement gaps found in American education systems (Cohen et al., 2012). These approaches include strengthening individuals' sense of belonging in the setting, encouraging optimistic interpretations of adversity, and setting high performance standards.

Promoting a sense of belonging. Making individuals feel like they belong in settings is a key priority for organizations seeking to eradicate the effects of ST (Good et al., 2012; Steele, 2011; Walton & Cohen, 2007). Steele (2011) gives several recommendations for education and employment that can be extended to sport settings. First, organizations should eliminate environmental cues that might exclude certain identities. These cues can include visual symbols, genres of music, or topics of conversation. If a cue is perceived as particularly representative of a certain group, then individuals not belonging to this group will likely perceive that they do not belong in the specific domain. For example, if heterosexual themes were to dominate the content of team locker room conversations, then homosexual team members would likely feel excluded. On a related note, any displayed photos or marketing materials on print or social media should be inclusive of as many social groups as possible. Second, arranging cross-group interactions can foster a sense of belonging by allowing organization members to know that their frustrations or struggles are common to peers across identity groups. For example, a university track and field team may have team discussion meetings that include members of all backgrounds and both men and women. Through such an interaction, a White female sprinter may discover with certainty that the anxiety she has been experiencing before competition is not linked to her race or gender because Black and/or male teammates have shared similar experiences. Third, it is important for organizations to recruit personnel at all levels, leadership and otherwise, representing multiple identity groups so that "critical mass" is reached. Steele (2011) explains that there is no precise numerical definition of critical mass, but the number of individuals in each subgroup should be sufficient so that it is unambiguous whether certain identities belong. As a non-example of critical mass, at the time of writing, among the 92 teams in the top four divisions of English

professional men's soccer, only about 4% of coaches in senior positions are of Black, Asian, or other minority race or ethnicity (Gibson, 2016).

Optimism toward adversity. Encouraging optimistic interpretations of adversity is similar to the point made in the previous subsection about changing negative appraisals (threats) to more positive ones (challenges). That recommendation refers to athletes' momentary coping with anxiety and negative feelings, thoughts, and self-talk within the context of a performance, whereas the current recommendation refers more generally to athletes developing a positive outlook toward overcoming adversity. Stereotype reactance, which is the idea that being made explicitly aware of a negative stereotype can motivate ingroup members to try to defeat it (Kray, Thompson, & Galinsky, 2001) is applicable here. Sports teams or organizations, with the support of sport psychologists, should develop and maintain positive messages about overcoming adversity. For example, these messages can be embedded in team or organizational slogans (e.g., "When the going gets tough, the tough get going", "We will rise above", "Struggle today. Strength tomorrow.").

High performance standards. Organizations need to set and maintain high standards for all performers. In higher education, Steele (2011) describes the academic advising relationship as central to the implementation of high standards. In sport, this can be analogous to any mentoring relationship between an athlete and a coach, sport psychologist, or academic advisor (i.e., a role that is common in American intercollegiate athletics departments). To minimize the impact of ST, Steele recommends that mentors give constructive critical feedback reflecting an incremental view, high expectations, and belief in the performer's ability to meet them (see Cohen, Steele, & Ross, 1999). This is also in line with Bandura's (e.g., 1991) social cognitive theory and recommendations for maintaining high self-efficacy. As such, the feedback

is more trusted and motivating because it is not interpreted as being given with lower standards due to prevailing stereotypes, or as unfairly critical due to discrimination. Consistent with this recommendation, English and Kruger (2016) highlight the potential of an approach to counseling intercollegiate student-athletes known as appreciative advising to reduce ST. Appreciative advising is a model predicated on developing rapport and supporting the advisee toward stated goals while maintaining high standards for performance (for details, see English & Kruger, 2016).

Paramount to all of these organizational level approaches are strong leaders and role models that endorse counterstereotypic views, emphasize an incremental view of athletic abilities and attributes, and set and maintain high performance standards (Stone et al., 2012). It is also imperative that an increasing number of organizations employ sport psychologists who are educated about ST and related issues.

Conclusion

In this paper, after giving an overview of research on stereotype threat in sport, a number of recommendations have been offered to practitioners. At the individual level, efforts to prevent the effect of ST include leveraging the complexity of athletes' multiple social identities, trying alternative approaches to skill learning, and retraining negative associations to more positive ones. Interventions to support coping with ST include training athletes to hold an incremental view of athletic performance attributes, to be aware and knowledgeable of ST and its effects, and to reframe threats as challenges. Although these individual level interventions may be more obviously within the purview of sport psychologists, it is hoped that practitioners will be equally inspired to advocate for organizational efforts to combat the pernicious effect of ST. At the organizational level, recommended practices include ensuring that individuals have a sense of

belonging, fostering positive dispositions toward adversity, and setting high performance standards that are maintained by mentors in direct contact with athletes. Considering the complexity of ST and its potentially negative effect on sport performance, it is hoped that the above recommendations will be a practical guide for sport psychologists, who are agents of change in maximizing human performance.

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