



## Decision-making of English Netball Superleague umpires: Contextual and dispositional influences



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### ABSTRACT

**Objectives:** The decisions made by officials have a direct bearing on the outcomes of competitive sport contests. In an exploratory study, we examine the interrelationships between the decisions made by elite netball umpires, the potential contextual and environmental influences (e.g., crowd size), and the umpires' dispositional tendencies – specifically, their propensity to deliberate and ruminate on their decisions.

**Design/Method:** Filmed footage from 60 England Netball Superleague matches was coded using performance analysis software. We measured the number of decisions made overall, and for home and away teams; league position; competition round; match quarter; and crowd size. Additionally, 10 umpires who officiated in the matches completed the Decision-Specific Reinvestment Scale (DSRS).

**Results:** Regression analyses predicted that as home teams' league position improved the number of decisions against away teams increased. A model comprising competition round and average league position of both teams predicted the number of decisions made in matches, but neither variable emerged as a significant predictor. The umpire analyses revealed that greater crowd size was associated with an increase in decisions against away teams. The Decision Rumination factor was strongly negatively related to the number of decisions in Quarters 1 and 3, this relationship was driven by fewer decisions against home teams by umpires who exhibited higher Rumination subscale scores.

**Conclusions:** These findings strengthen our understanding of contextual, environmental, and dispositional influences on umpires' decision-making behaviour. The tendency to ruminate upon decisions may explain the changes in decision behaviour in relation to the home team advantage effect.

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## 1. Introduction

In competitive sports, officials are required to make rapid and complex decisions, often in a highly pressured environment (Helsen & Bultynck, 2004). Moreover, their decisions often directly affect the outcome of competitions (Plessner & MacMahon, 2013).

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For example, during the final minutes of the 2015 Rugby World Cup quarter-final between Scotland and Australia, referee, Craig Joubert, decided to award a controversial penalty to Australia for a deliberate knock-on, resulting in a 35–34 victory for Australia, which enabled them to progress to the semi-final of the competition. Such decisions invariably attract negative evaluations by aggrieved players, coaches, spectators and the media, so the importance of consistent and impartial officiating is unquestionable (Stulp, Buunk, Verhulst, & Pollet, 2012).

Decision-making can be influenced by a variety of factors (MacMahon et al., 2015), such as home advantage and crowd noise (e.g., crowd noise contribution to the home advantage effect, Nevill, Hemingway, Greaves, Dallaway, & Devonport, 2016; Unkelbach & Memmert, 2010), competition level (Souchon, Cabagno, Tractlet,

Trouilloud, & Maio, 2009; Souchon et al., 2016), reputation (e.g., expectation bias in gymnastics, Plessner, 1999) and time (e.g., decision accuracy and frequency throughout games, Emmonds et al., 2015; Mallo, Frutos, Juárez, & Navarro, 2012). In the current paper, we employ an exploratory approach to examine the decisions made by netball umpires and the influences of contextual and environmental factors on the number of decisions made. Moreover, we investigate umpires' self-reported tendency to reinvest in, and ruminate upon, their decisions.

Many researchers have focused upon the home advantage in sports – a phenomenon whereby there is an apparent advantage conferred to the home team. Four major determinants have been suggested to cause the home advantage effect namely, familiarity, territoriality, travel fatigue, and crowd noise (Pollard, 2008). It has been suggested that home advantage fluctuates throughout the game. For example, in basketball, Jones (2007) demonstrated that the home advantage (difference in points scored by the home and away teams) was greatest in the first quarter. In volleyball, home teams had a greater advantage at the beginning (1st set) and towards the end of the game (4th and 5th sets); this effect has been attributed to familiarity with the venues and crowd effects (Marcelino, Mesquita, Palao, & Sampaio, 2009). In relation to the referee's influence on the home advantage, Boyko, Boyko, and Boyko (2007) examined data from 5244 English Premier League soccer matches involving 50 referees. They found that referees differed in their susceptibility to the home advantage effect; hypothesising this was due to variations in the referees' ability to deal with social pressure. However, Johnston (2008) replicated Boyko et al.'s (2007) approach and found no evidence of such individual differences when removing referees who only officiated a few matches. To investigate this discrepancy further, Page and Page (2010) analysed footage from 37,830 national and international soccer matches across 58 competitions, between 1994 and 2007. Their analyses showed that not only did the size of the home advantage differ significantly between referees, but also, in line with Boyko et al. (2007), their decisions were moderated by crowd size – lending support to the notion that referees cope differently with the social pressure exerted by home crowds.

Using a video-based protocol, Nevill, Balmer, and Williams (2002) manipulated crowd noise presence (“loud” or none) and found that soccer referees made more decisions in favour of the home team, and in line with the original match referee. Unkelbach and Memmert (2010) identified the inherent limitation of testing crowd noise (“natural conditions”) versus no crowd noise (“unnatural conditions”). The authors highlighted that Nevill et al.'s (2002) findings merely indicate that home crowd noise biases decisions compared to no crowd noise, rather than crowd noise influencing referee decisions in favour of the home team. Subsequently, Unkelbach and Memmert (2010) tested the hypothesis that louder crowd noise would lead to more yellow cards awarded compared to low crowd noise. Twenty referees viewed 56 foul scenes, in which 50% led to the award of a yellow card and 50% did not. The high-volume crowd noise led to substantially more yellow cards than low-volume crowd noise. Further evidence in soccer indicates that home teams were awarded more penalties (e.g., Nevill, Newell, & Gale, 1996; Scoppa, 2008; Sutter & Kocher, 2004), and fewer yellow and red cards (Buraimo, Forrest, & Simmons, 2010) with the size of the attending crowd moderating these effects (Boyko et al., 2007).

The mediating effect of competition level has received scant attention, whilst stage of competition (e.g., Round 1, playoffs, finals, etc.) has yet to be investigated. Souchon et al. (2009) proposed that the level of competition is a stereotyping heuristic used by referees to form their decisions, interpreting fouls differently according to their preconceptions regarding the standard of play. Souchon et al.

(2009) investigated this notion in handball (e.g., lower versus higher standard), predicting the level of competition effects would be greater for more difficult, ambiguous handball transgressions (“pushing offences”, opposed to clearer “holding back” offences) and anticipating that referees would be more lenient in higher-standard competition. They reported that referees intervened less frequently at higher levels of competition and allowed play to continue without intervention more frequently following more ambiguous transgressions (pushing offences compared to holding offences). Similarly, Souchon et al. (2016) observed that referees intervened less often when higher-level players transgressed. The authors suggested that a reduction in decisions made may be the culmination of a number of factors: referees trying to maintain the flow of a match; referees making fewer calls to maintain the game's value as a spectacle (e.g., Mascarenhas, O'Hare, & Plessner, 2006); that a greater number of fouls may be more ambiguous in high-level competition, due to the high speed of play; that greater levels of player aggressiveness may make it more difficult to identify transgressions; or that referees may assume that certain players can continue their actions despite the seriousness of the foul committed (e.g., gender stereotype and males superior physical ability, Souchon et al., 2010). In this study, we aim to examine potential changes in the number of decisions made across progressive competition rounds (perceived match importance arguably increases as the rounds progress).

Few researchers have focused on the effect of the competing teams' abilities on sports officials' judgements. However, Plessner (1999) examined the idea of an expectation bias in team gymnastics, where gymnasts normally perform in a ranked order, worst to best. Plessner predicted that when the same routines, placed in either first or fifth position, will score higher when the judges view them in the latter position. Forty-eight gymnastic judges, with prior expectations of coaches' rank order of the gymnasts, judged videotapes of a men's team competition. Their results supported the notion of an *ability expectation bias*, whereby, for difficult tasks (e.g., pommel horse, vault, and horizontal bar) the judges awarded greater scores when the target routines were presented fifth than if they were presented first. Findlay and Ste-Marie (2004) explored athlete reputation bias in figure skating judgments. Twelve judges evaluated performance of 14 skaters, half of whom were known to the judges. The performance of skaters with a pre-existing positive reputation were scored more highly than those of the unknown skaters. It is possible that similar unconscious biases relating to perceived athlete ability may also exist in team sports; hence, we also took the competing teams' pre-eminence (i.e., their league position) into account in this study.

To date, a limited body of research has investigated the effect of the match period on sports officials' decision-making. Mallo et al. (2012) assessed the soccer referees' decision quality and quantity in relation to match periods. Mallo et al. reported that a greater number of incidents occurred in the last 15-minute period of matches – but the lowest referee decision accuracy (77%) was also observed during this period. They suggested that physical and mental fatigue occurs during the final stages of a match leading to impaired decision-making. Similarly, Emmonds et al. (2015) found a drop in penalty judgement accuracy in rugby league referees in the last 10 min of matches. Conversely, Mascarenhas, Button, O'Hare, and Dicks (2009) reported that soccer referees were less accurate in the opening 15 min of each half than they were at any other period. They attributed poorer decision-making to warm up decrements, whereby their physical warm-up was not accompanied by any mental warm up techniques. Finally, Elsworth, Burke, and Dascombe (2014) investigated decision-making demands of Australian Football referees, and reported that the number of free kicks awarded and free kick accuracy did not differ across each

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