



Referee efficacy in the context of Norwegian soccer referees – A meaningful construct?

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ABSTRACT

Objectives: The purpose of this study was two-fold. Firstly, to examine the measurement/factorial validity and invariance of the Referee Self-Efficacy Scale (REFS) among Norwegian soccer referees. Secondly, extending scale validation, we also tested a structural model in which a second-order version of the REFS was modelled to mediate a set of theoretically informed antecedents and outcomes.

Design: Cross-sectional.

Method: One hundred and eleven Norwegian elite referees and 81 non-elite referees completed an electronic questionnaire measuring expected antecedents and outcomes of perceived self-efficacy in the role as referees.

Results: Analyses provided support for the first – and second order versions of the REFS scale as well as for scale invariance. Further, a task goal and experience as referee related positively to referee positive affect, mediated by referee efficacy. Unexpectedly, physical preparation related directly to positive affect, whereas no mediation effects or direct effects for mental preparation and ego goal were observed.

Conclusions: Measurement/factorial validity and invariance of the REFS were fully supported. Validity of the scale in mediation model by Guillén and Feltz (2011) was only partly supported.

1. Introduction

Officiating at a game of soccer is both physically and mentally demanding, and it is probably impossible for referees in any sport to avoid making mistakes during a game. Hence, from the referees' perspective, the inherent possibility of making mistakes during a game may lead to loss of confidence, increased anxiety and stress levels among them and, in the worst case, burnout and more frequent dropout (Guillén & Feltz, 2011).

However, Bandura (1997) holds that a person's sense of self-efficacy includes optimistic self-beliefs, which are defined as the strength of an individual's conviction that he or she can successfully execute behaviors that are required to achieve certain outcomes. Such perceptions are predicted to influence task choices, effort expenditure, and resilience to failure, as well as affective states (Bandura, 1997). Researchers have developed conceptual frameworks for efficacy beliefs within various performance contexts, such as academic (Bong, 2001; Federici & Skaalvik, 2012), organizational (Stajkovic & Luthans, 1998), and sport (Sullivan & Kent, 2003) contexts. Although efficacy beliefs have been well researched in sports, most of these studies have focused on the self-efficacy beliefs of athletes (Sullivan & Kent, 2003) and coaches (Myers,

Feltz, & Wolfe, 2008) in terms of cognition, affect, and behavior. In contrast, self-efficacy research on sports officiating is less well developed. Guillén and Feltz (2011) initiated this research agenda with a conceptual model of *referee self-efficacy*, which they termed “referee efficacy” and defined as “the extent to which referees believe they have the capacity to perform successfully in their job” (p.1). Guillén and Feltz (2011) emphasized that the concept of referee efficacy in the context of sports is unique. Thus, the dimensions of referee efficacy and the sources of efficacy information for efficacy beliefs and performance may differ from those that have been observed in other contexts (Guillén & Feltz, 2011). They conducted focus group interviews of nine male soccer referees to collect information for their model of referee efficacy, and six key confidence components for officiating success emerged: game knowledge, decision-making skills, psychological skills, strategic skills, communication/control of the game, and physical fitness (Guillén & Feltz, 2011). They also acknowledged that their model was preliminary and that it probably contained fewer sources, dimensions, and outcomes pertaining to referee efficacy than they first suggested. Inspired by this preliminary conceptual framework for referee efficacy, Myers, Feltz, Guillén, and Dithurbide (2012) conducted multiple studies to provide initial evidence for the validity of measures

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derived from the Referee Self-Efficacy Scale (REFS, Myers et al., 2012). The operational definition of referee self-efficacy in REFS is slightly different than the one Guillén and Feltz (2011) used, and it was oriented more toward the extent to which a referee believes that he or she can successfully officiate at a match/competition. The concept of referee self-efficacy was developed for referees in team sports (Myers et al., 2012), and it was thought to have four first-order dimensions (defined by just a few items each), including game knowledge (GK), decision-making (DM), pressure (PR), and communication (CM). The REFS instrument was tested in three different studies with large sample sizes and preliminary evidence for the internal and external validity of the measures was provided. Guillén and Laborde (2015) encouraged other scholars in various countries to translate and examine the REFS instrument and begin developing a broader empirical research base on referee efficacy. Recently, Karaçam and Pular (2017) validated a Turkish version of REFS in a sample of team sport referees in which they expanded the instrument by integrating a physical dimension. In addition, Guillén, Feltz, Gilson, and Dithurbide (2018) found suitable properties in terms of the instruments dimensionality and internal consistency in a study using a Spanish version of REFS on team sport referees. Finally, an Italian version of the REFS instrument has been used in a sample of handball referees (Diotaiuti, Falese, Mancone, & Purromoto, 2017). However, this paper did not address other psychometric properties than internal consistency estimate and used the instrument as an overall second-order dimension.

Despite the abovementioned exceptions, evidence for the ecological/cultural validity of the REFS instrument may still be considered sparse (Myers et al., 2012). Thus, the first purpose of the present study was to examine the measurement/factorial validity of a Norwegian version of the REFS instrument. In addition, there is evidence of measurement invariance across relevant subgroups in the sports literature on self-efficacy (Myers et al., 2012). However, as argued by the same researchers, “it is unclear if it is reasonable to assume that REFS measures would be comparable across relevant subgroups” (Myers et al., 2012, p.744). Hence, we also examined the invariance of the scale across two groups of Norwegian referees: elite and non-elite referees.

To extend the work of Myers and his colleagues (Myers et al., 2012), we also tested the instrument modelled both as first-order dimensions and as an overall second-order dimension (e.g., Diotaiuti et al., 2017). In the latter case, it would seem possible to facilitate future tests of more complex structural models using referee efficacy as an antecedent, mediator, or outcome variable (Byrne, 2012).

1.1. Behavioral and cognitive antecedents and outcomes of referee self-efficacy

Following recommendations by Guillén and Feltz (2011), the second purpose of this study was to extend the validation of the scale by examining the mediating role of referee efficacy in relation to selected antecedents and outcomes. We took advantage of suggestions made by Feltz and her colleagues (Feltz, Chase, Moritz, & Sullivan, 1999) and modelled referees' physical and mental preparation and referees' experience as antecedents. According to Bandura (1977), preparations and experience are the most dependable for forming efficacy judgments and they have been found to be strong predictors of coaching efficacy (Feltz et al., 1999). Of course, the potential importance of physical and mental preparedness is supported by the consensus that refereeing in soccer is a mental process that requires quick decisions (Bar-Eli, Plessner, & Raab, 2011; Helsen & Bultynck, 2004; Hoseini, Aslankhani, Abdoli, & Mohammadi, 2011; Johansen & Haugen, 2013; Plessner & Haar, 2006). Given the psychological demands required for successful soccer officiating, mental or psychological preparation is as important as physical preparation (Blumenstein & Orbach, 2014; Giske, Haugen, & Johansen, 2016; Piffaretti, 2007; Wolfson & Neave, 2007).

In accordance with recommendations by Guillén and Feltz (2011), we extended the set of antecedents by adding referees' achievement

goal orientations to the equation. Goal orientations represent one's cognitive dispositional tendency in evaluating ability and success in achievement situations (Nicholls, 1989). According to the social cognitive perspective of achievement goal theory, a task orientation refers to individual effort that is focused on learning, trying hard, improving, and mastering the task by demonstrating ability. In contrast, a fixed conception of ability elicits an ego orientation, which is the cognitive dispositional tendency to want to demonstrate one's superior ability via social comparison. Individuals who possess a high learning goal orientation are thought to believe that their abilities are malleable and thus they approach tasks with the intention of developing their skills and abilities. By viewing their ability as fixed, individuals with a high-performance goal orientation approach tasks with the sole intention of performing well (Dweck & Leggett, 1988; Jourden, Bandura, & Banfield, 1991). Goal orientations have been shown to influence self-efficacy, with a task goal orientation facilitating efficacy beliefs, whereas an ego goal orientation has been shown to diminish self-efficacy (Phillips & Gully, 1997). In sports, a task orientation has demonstrated a consistent and significant positive association with self-referenced sources of confidence information about athletic ability, whereas an ego orientation has been positively associated with the use of normative confidence sources related to ability and expectations for success (Magyar & Feltz, 2003). Hence, there seems to be evidence for empirical links between goal orientations and appraisal of sports confidence sources such that different goal orientations may differentially activate the appraisal of efficacy beliefs.

With respect to outcomes of referee self-efficacy, Guillén and Feltz (2011) proposed referee satisfaction as a positive outcome of high referee efficacy. In the current case, we emphasized a slightly more affective outcome as represented by positive affective states. Bandura (1990) argued that when individuals with low self-efficacy expectations perform a personally important task, they may feel despondent, especially if they anticipate failure. In contrast, when referee self-efficacy beliefs are strong, individuals are more likely to expect success, which would be likely to elicit positive emotions as exemplified by positive affect (Thelwell, Lane, & Weston, 2007). Examining the role of positive affect in refereeing would seem to be important, given the research findings that a lack of enjoyment while refereeing is related to intentions to quit and to referees' stay/leave behavior (van Yperen, 1998).

1.2. Expectations

First, consistent with previous research (Guillén et al., 2018; Karaçam & Pular, 2017; Myers et al., 2012), we expected to gain support for the following four first-order dimensions of the Norwegian version of the REFS: game knowledge (GK), decision-making (DM), pressure (PR), and communication (CM). Second, we expected the first-order measurement model to be invariant across elite and non-elite referees. Thirdly, we expected to gain support for the second-order model of the scale.

With respect to the structural model, as illustrated in Fig. 1, we expected referee experience and self-reported mental and physical preparation to relate positively to positive affective states when refereeing, mediated by high referee efficacy. In terms of the referees' goal orientations, we expected a task goal orientation to relate positively to positive affective states when refereeing, mediated by high referee efficacy. We expected the opposite to hold true for an ego goal orientation.

2. Method

2.1. Participants

Two samples of participants were recruited for this study. Sample 1 was composed of elite Norwegian referees and assistant referees from the top Norwegian men's league, “*Tippeligaen*,” the second-best league,

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