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ROLE DEMANDS AND PSYCHOLOGICAL FACTORS UNDERPINNING PERFORMANCE IN MIXED MARTIAL ARTS REFEREEING

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ABSTRACT

This paper offers a discussion of the role demands facing referees working in mixed martial arts (MMA), as well as the factors that determine their performance in managing them. To do so, it uses data derived from a qualitative, ethnographic investigation based on field observations carried out at 16 competitive MMA events, plus interviews with seven referees, six of whom had extensive experience of working at the highest international levels of the sport. This data reveals several specific problems that these professionals must navigate, along with the attributes, skills and resources they identify as necessary for doing so. The paper then discusses ways in which applied sport psychology interventions can contribute towards the work of referees, particularly with respect to handling the mental demands of working in this uniquely challenging sport.

The full-contact combat sport of mixed martial arts (MMA) has seen significant development in recent years. Now an internationally popular commercial sporting spectacle, it has numerous highly profitable promotional companies running competitive events around the world. In addition to its professional leagues, MMA also boasts a flourishing amateur scene, partly overseen by the International Mixed Martial Arts Federation (IMMAF) and its numerous national affiliates. Clubs and minor regional-level competitive events abound in many countries, creating opportunities for broad participation in MMA and providing a base for amateur and professional talent development. In the UK alone, for instance, at the time of writing, there are estimated to be over 480 martial arts gyms and clubs offering regular MMA training to their members [see Tapology n.d.], while competitive events in the sport take place across the country on most weekends of the year. However, despite its evident popularity, MMA remains poorly regulated in the UK with a lack of clear governance, and leadership structures largely built around voluntary cooperation with quasi-official bodies [see Channon, Matthews & Hillier 2020; Sigler 2013].

Alongside the sport's growth, academic studies of MMA have proliferated over the past two decades. Topics of interest have included the physical demands of the sport [Kirk et al. 2020]; its coaching methods [Vaaitinen 2017]; specific injury risks [Ross et al. 2021]; psychological demands of competition [Jensen et al. 2013; Vaccaro et al. 2011] and applied sport psychology concerns [Andrade, Silva & Dominski 2020]; fan and spectator motivations [Zembura & Zysko 2015]; athletes' attitudes towards risk-taking [Channon 2020]; their experience of pain and injury [Lenartowicz, Dobrzycki & Jasny 2022; Spencer 2012]; the sport's relationship with gender [Green 2015; Hamilton 2022]; the sense of community within gyms [Sugden 2022]; MMA media coverage and framing [Brett 2017; Naraine & Dixon 2014]; governance and legalisation [Ramirez 2023; Vertonghen et al. 2014]; and many more besides. However, to date there has only been one published paper that has explored the role played by referees within competitive MMA [Channon 2022].¹

This is surprising given the centrality – both literally and figuratively – of referees to the sport's action. Considering that MMA leadership and governance are often fragmented, officiating might reasonably be assumed to be a more onerous responsibility than in more formalised sports, and perhaps therefore a more important task to understand in this context than others. Indeed, as we will show in this paper, the proverbial 'men in the middle' occupy a crucially important place in facilitating fair and safe competition, and without skilled, well-prepared, competent officiating, the fortunes of the sport – as well as the wellbeing of its athletes – would be placed at significant risk. As such, scholars of combat sports in general, and MMA in particular, are advised to consider these officials in their efforts to understand this discipline, and

also see them as beneficiaries of academic knowledge and service in efforts to positively influence the development of this sport.

To address this gap in the literature, the present paper offers an overview of the key demands and challenges facing MMA referees, building towards a tentative set of recommendations for using applied sport psychology to help with their work. In line with previous research on the psychology of refereeing more broadly, we argue that sport psychologists can offer meaningful support to MMA referees in several core domains, and thus benefit the sport by supporting these vital players in its operational structure. To begin with, we offer a brief outline of existing sport psychology and sociology research on sports officiating, as pertinent to the present work.

THE PSYCHOLOGY OF SPORTS OFFICIALS: SELECTED THEMES AND ISSUES

As Hancock et al. note in their review of research on sports officiating, 'competitive sport would not exist' [2021: 607] without the involvement of its officials – umpires, judges, referees, and their assistants. Thus, over the past few decades, sport scientists from various disciplines have explicitly recognised that, given their importance to the institutional functioning of sport, such professionals ought to be seen as 'performers in their own right' [Slack et al. 2013: 298], with the demands of their roles, as well as their experiences and performances within them, studied accordingly. Such a recognition has led to a proliferation of empirical studies of officials, covering a wide range of topics including factors underpinning performance [e.g., Mascarenhas, O'Hare & Plessner 2006; Slack et al. 2013], training and development needs [e.g., Mack et al. 2018], career trajectories and motivations [e.g., Parsons & Bairner 2015], and the experience of, and institutional response to, abuse of officials [e.g., Mojtahedi et al. 2022; Webb 2022].

While lack of space precludes a thorough examination of this field of research, several topics that appear consistently throughout the literature warrant discussion here to contextualise the present study's findings. Firstly, the role of the official as holding significant responsibility to *maintain orderly gameplay* is often centralised in the literature. Here, officials are charged with enforcing the rules of play and punishing violators of those rules [Snyder & Purdy 1987], thus ensuring that matches proceed according to established conventions and in the spirit of fair competition. At the same time though, a careful balance must be struck between interfering in the interests of fairness, match integrity, or safety [Channon 2022], whilst not becoming an overbearing force that spoils or ruins the sport [Plessner & MacMahon 2013]. As such, officials must use their best judgement over when, and how far, to enforce the

¹ In this previous study [Channon 2022], the discussion centres on the role of referees in producing and maintaining socially desirable risk, principally aimed at constructing a theoretical discussion on the nature of risk, risk taking, and risk management in combat sports. While the current paper does discuss risk in some sections, its aim is broader, centring on the effort of outlining the role demands of MMA refereeing, vis-à-vis their implications for providing psychological support to these referees' work.

rules of the game, and when to allow infractions to pass by [Slack et al. 2013; Rains 1984].

This balancing of priorities calls for *complex decision making* that highlights the subjective nature of the work of officials, despite popular assumptions about such roles' need for objectivity [Mascarenhas, O'Hare & Plessner 2006; Rains 1984]. Referees, for instance, must often make nuanced and highly contextual judgements when discharging their duties [Hancock et al. 2021; Plessner and MacMahon 2013]. These may involve such factors as the degree or intensity of a potential foul, the likely intentionality behind it, its impact on gameplay and thus importance, its place within any patterns of prior actions, and the likely impact of taking one or another form of remedial or punitive action over it. That such decisions need to be made very quickly, in social contexts where emotions are running high and judgement of one's performance is always an immanent consideration [Slack et al. 2013; Smith 1982], highlights the *significant pressure* that many sports officials work under, and helps contextualise the *abuse* that many subsequently endure [Mojtahedi et al. 2022].

One way of helping manage these pressures and ensuring that their decisions are respected is to adopt an appropriate *style of communication* with others, such as athletes and their coaches. Although specific communication strategies may vary between officials and be best suited to different situations [Cunningham et al. 2014], characteristics such as clarity, assertiveness, confidence, coolness and empathy are often highlighted as important for effective communication, helping to ensure that officials' decisions are both understood and respected by others [Mascarenhas, O'Hare & Plessner 2006]. Impression management and presentations of self that emphasise similar characteristics also assist here by imparting a sense of the official as a trustworthy arbiter of sound judgement [Cunningham, Simmons & Mascarenhas 2018; Mellick et al. 2005]. Unsurprisingly, the literature points to a far wider body of *skills and attributes* that might benefit sports officials' performance beyond decision making or communication and impression management. Throughout the studies so far cited, these include (but are not limited to) emotional intelligence/competence, knowledge of their sport, mental toughness, physical fitness, positioning and movement, preparation before games, reflexive self-awareness, resilience and coping ability, and an intangible 'feel for the game' [Mascarenhas, Collins & Mortimer 2005; Pina et al. 2018; Plessner & MacMahon 2013].

To help build these various qualities, formalised structures for *training and career development* exist across sporting contexts. However, these may be more or less effective at imparting the required skills noted of the officials they serve and vary in content and quality between contexts [Cunningham et al. 2014]. Meanwhile, the importance of *teamwork and social support* for facilitating effective officiating emerges across numerous studies. Referees, assistant referees, judges, umpires and others will often work in teams during matches [Neville, Salmon & Read 2018], with such arrangements serving multiple purposes, from helping to ensure accuracy in decision-making through to strengthen-

ing the appearance of authority and so helping to stay in control [Boyer, Rix-Lièvre & Récopé 2015; Smith, 1982]. Beyond matches themselves, networks of support from other officials help to manage the emotional demands of the work [Slack et al. 2013], and can also afford opportunities for mentoring and career development [Parsons & Bairner 2015].

While this short and selective discussion of prior literature draws largely on the findings of a sample of qualitative studies, as Hancock et al. [2021] identify in their review article, the vast majority of research in this field remains quantitative, and is focused on testing the impact of specific, isolated variables on officials' performance. As such, there is comparatively little qualitative work on sports officiating, with social psychological and sociological studies in particular remaining relatively few and far between. Research on topics well suited to this paradigm, including officials' development, communication, and group dynamics, collectively accounted for only 15 of Hancock et al.'s review sample of 386 papers; less than 4% of the entire body of work on sports officiating that was thereby reviewed.

Moreover, while referees working in team sports (such as association football) have received much interest from scholars [see Webb 2022], other sporting disciplines are underrepresented in the field. In particular, very little research has directly explored the work of combat sports officials, with only 9 published studies dealing with a small range of martial arts; only 2 of these explore social psychological or sociological factors [Channon 2022; Smith 1982]. This lack of interest from scholars of sports officials is surprising given the unique challenges facing referees working in combat sports [see Bernick et al. 2021; Sethi 2016], most notably with respect to their clear and ever-present potential for injury [Ross et al. 2021], symbolic association with morally problematic 'violence' [Brett 2017], and the role of the referee as a direct mediator of such phenomena [Channon 2022; Channon and Matthews 2022].

Following Hancock et al.'s [2021] call to adopt more 'in-situ' methodologies, drawing on qualitative data with sports officials to develop knowledge in under-researched contexts, this present paper makes an original contribution to the field of officiating research by offering an overview of the role demands of MMA refereeing grounded in qualitative social science research. Here, we seek to explain in detail the core responsibilities that referees have in this sport, outlining various challenges they face and the skills they require to manage them, with a view to building a series of recommendations for how applied sport psychology can be used to support them in their work. Our intention for doing so is to ensure that combat sports referees are better represented in the academic literature, whilst also highlighting the potential for academic work to be mobilised towards positive interventions in a complex and highly demanding field of practice. Ultimately, we hope that this form of scholarship can be influential in improving professional standards within MMA, given the centrality of referees to its effective functioning. In the following section, we outline the steps undertaken to these ends.

METHODS

Adopting an ethnographic methodological stance, this study involved a period of immersion within the social field of competitive MMA in the UK. We assumed an interpretivist, qualitative epistemological position to understand the experiences and realities of MMA officials by means of close proximity to the action comprising their day-to-day work, along with detailed conversations with them to help make sense of it [see Smith & Sparkes 2016; Thorpe & Olive 2016]. We argue that this approach was the most fruitful to take given the paucity of research on combat sports referees to date, as well as the need for a robust, descriptive account of referees' work that is required to meet the aims of the study. In particular, the combination of observations with interviews meant that we were able to see first-hand how various role demands played out in real-time, while being able to discuss these with the characters who understood them best. The complementarity of these methods is well-understood by ethnographers [Atkinson 2016], and certainly benefited the data gathering in the present study.

Researcher positionality

As a practitioner of martial arts and follower of competitive MMA, the first author was able to integrate himself into this field via his contacts at local training centres, and thereby go on to establish rapport with respondents and gatekeepers around shared interests and understanding of the combat sports milieu. This positionality likely supported easier access to the field and helped ensure that its most prescient concerns were addressed in the study, although it also necessitated reflexive care over the analysis of data to avoid biases or taken-for-granted assumptions. In this respect, the second author – herself not an 'insider' in the sport – helped challenge and critique the first authors' interpretations during the analytical process, returned to below.

Procedures and sample

Observational data were collected by watching referees work at 16 competitive MMA events held across England between early 2018 and mid-2019. Observation periods at these events lasted 4–12 hours (avg. 7.3 hours), and in total 17 different referees, all of them men, were observed during the study. Most of these were observed more than once, since referees often worked in pairs or small teams at most of the events visited. Observations were recorded using hand-written field notes, which were transcribed within two days of the events. Meanwhile, the interview arm of the study utilised semi-structured interviewing with seven MMA referees, all of whom were men, aged 31–54 (avg. 42) at the time of interview. Six of these had extensive international experience, working for many if not most of the sport's major promotions, as well as at lower-level, regional events. Five of the referees were based in the UK, with one based in the USA and one in Australia, although all were working in the UK at the time of the study. Their levels of experience ranged between 6–15 years at the time of interview, with an average of 10.2 years. All of them had previously competed as MMA fighters, and had also performed other roles in the sport, such as coach-

ing or judging. Thus, while the sample size is small, these participants held a wealth of knowledge about MMA, each having officiated thousands of rounds over the course of their careers. The interviews lasted 34–74 minutes (avg. 50 minutes) and were conducted either on-site before the start of competitive events, or online using video calls. These were digitally recorded before being transcribed verbatim. All interviewees were included in the observation sample, and interviews took place contemporaneously with observations.

Ethics

Ethical approval for the study was granted by the authors' institutional review board. All participants provided written consent to take part in the study, after being informed of its voluntary nature and their right to withdraw at any time. As far as is feasible, identifying information has been removed from this manuscript; notably, this includes participants' ages, ethnicities, and nationalities. Despite calls for greater transparency in reporting demographic information in research on officials [e.g., Hancock et al. 2021], given the very small community of MMA referees working in the UK and the public profile of most of the sample, disclosing this information would likely compromise anonymity. All participants are referred to via pseudonyms, while the approximate length of time each participant had worked as an MMA referee at the time of interview is also noted at first mention.

Analysis

Data analysis for this paper was shared by both authors and involved the use of thematic analysis. With her training and experience in applied sport psychology, the second author's perspective was invaluable in refining an interpretive framework pertinent to the practical application of academic knowledge. This complemented and extended the insights developed through the first author's ethnographic research and MMA 'insider' perspective, ensuring that empirical findings and context-sensitive conceptual analyses could be reconciled with applied practice considerations. The exact procedure used to analyse the data involved our own interpretation of the steps outlined by Braun, Clarke and Weate [2016]. Specifically, we began by coding the raw data transcripts, guided by our reading of the literature noted above. We then clustered these codes together into a broad set of first order themes, which were then reduced into coherent thematic categories. We then re-presented these through writing out short, descriptive summaries of what the themes showed about the data. These summaries were then themselves re-coded to generate a set of second order themes, this time adopting a more conceptual, analytical perspective that cut across the data set, revealing patterns throughout the accounts. Finally, these were also written up into short 'analytical narratives' [Braun, Clarke and Weate 2016], which could be compared back to the raw data. As a form of member checking, one of the interviewees was contacted to review these summaries and supported them as accurate accounts of the work of MMA referees.

FINDINGS

The following sections outline the second-order themes noted above, organised around key challenges and core competencies referees highlighted to us through their interviews, and which were observed in their actions. Each section is illustrated with data excerpts most pertinent to the theme in question, collectively demonstrating the role demands of this work.

Decision making: Balancing risks, stopping fights, and facing consequences

Referees may hold many responsibilities while managing the action of MMA fights, but enacting stoppages when fights are deemed to be over is perhaps the most important of these. In MMA, stoppages are considered appropriate when 'a fighter is no longer actively, intelligently defending themselves' (Frank, 15 years); that is to say, when a fight is seen to have reached its own conclusion, with one opponent unable or unwilling to resist the other, and thereby no longer a legitimate target for attack according to the sport's moral logic [Brett 2017; Channon 2020].

This determination of a suitable stoppage effectively requires assessing and balancing two different types of risk: risk to the athlete's health arising from continued physical punishment, versus risk to the competitive integrity of the bout arising from a referee's undue interference. As discussed above, referees are cognisant of the need to move carefully between these two poles:

I'm trying not to intervene too much unless necessary. I'm not trying to spoil the fight but at the same time I don't wanna jeopardise fighters' safety. (Baz, 6 years)

As a referee you want to be invisible if you can. If you can get through a big fight, and nobody can remember who was the referee, then that's ideal. It's a compliment to the fighters that they fought clean and steady, didn't need interruptions and didn't foul, and it's also a good reflection on you that you let them fight. (Hugh, 15 years)

These two overarching risks – threats to health and fight integrity – overlap with several others. An 'early stoppage' risks the athlete's (and their coaches') career record and thus potentially the much-needed financial rewards from participating (particularly so at the professional level [see Bernick et al. 2021]). It also risks undermining the enjoyment of spectators and thus the commercial success of the event and fortunes of the wider sport – not to mention earning the referee an undesirable reputation for being 'too safe'. Meanwhile, a late stoppage threatens not only the health of the athlete as they absorb additional, 'unnecessary damage' (Kevin, 8 years), but also similarly earning a reputation for the referee as being 'dangerous'. Moreover, there may also be legal and/or financial implications for the referee, the organisers of the event they

are working at, and the public reputation of the sport at large, should catastrophic, preventable injuries or deaths occur:

From a selfish point of view ... I've been to coroner's court before [in the context of my day job] and it ain't much fun. And there will be an enquiry, and if you haven't done *everything* that you thought you could do, that's it. That's it for you, maybe for the promoter. And that'll ruin the whole sport for everybody, too. (Jon, 7 years)

These overlapping and at times conflicting risks were not lost on the referees, yet they unanimously affirmed an overriding concern with athlete safety whenever there was any doubt over what action to take, such that 'decisions are always based on the fighters' safety, first and foremost' (Ali, 10 years). Tellingly, referees often noted this priority was not always shared by fighters themselves:

That's what I'm there for, to save you from yourself. You may not realise it but that's what we're here to do. Your adrenaline's kicking in, your mindset is to fight ... fight to the death! But like I said I'm saving you from yourself, saving you to allow you to fight another day, to go home to your family in one piece. (Baz)

Herein, the referee assumes the right to 'make that wise decision on [a fighter's] behalf' (Hugh), preserving their health and wellbeing by ending a fight when they refuse to quit. While other sports officials navigate various tensions in their decision-making processes [Plessner & MacMahon 2013], MMA referees here face a deeper ethical dilemma than most, given their primary responsibility for athletes' safety in a sport replete with immanent physical danger. This tension becomes particularly acute in moments where stoppages are not yet justified within the sport's norms, but an athlete's wellbeing may nevertheless be threatened as they continue fighting despite losing badly [Channon 2022].

Moreover, it was evident that MMA referees are likely to come in for significant abuse over unpopular decisions, regardless of whether they felt morally justified in their own calls. While largely centring on enduring crowd taunting or social media abuse, this could also involve violent retribution from fighters, their entourage, or their fans. Although apparently very rare, two participants in our sample recalled such incidents; one who was physically attacked in the cage by a losing fighter, and another whose car was vandalised by fans outside the arena. Otherwise, as one highly experienced referee put it:

If someone asks me what I do for a living I tell them, 'I basically travel around the world to get shouted at'. All the time, people scream at me! (Hugh)

Communication: Maintaining control via strategic interaction

Although directly abusive treatment from fighters was a rarity, most interviewees reflected on moments where the emotionally fraught nature of MMA fights challenged what was otherwise a normalised cultural expectation to respect the referee. This had the potential to undermine their ability to control matches or events, or could otherwise make them targets of emotional outbursts:

You do get a lot of that response, hostile response [to stop-pages] ... Adrenaline is going through their body and their emotions are all over the shop for those first few seconds. They hate everyone, they just got busted up. (Noel, 10 years)

To that end, strategically adopting specific communication styles was discussed as a vital skill for effective refereeing, as it could allow them to stay one step ahead of the emotional tumult engendered by the sport. Typically, referees used interactions with fighters (and coaches) prior to the commencement of matches to establish a sense of authority, and/or a trusting rapport, before 'that red mist comes down' (Noel) in the cage. As in previous research [Cunningham et al. 2014], they employed different stances and styles of communication relative to the perceived needs of the moment. This could take the form of relaxed, rapport-building conversations with groups backstage; empathetic one-to-one discussions with nervous fighters; or assertive and confident delivery of a 'rules talk' with whole rosters of competitors and their entourages:

What I'll usually do is, depending on how much face-time we've had before the moment we're actually in the cage, I'll go over and give them a few words, like, 'you need to protect yourself at all times, keep fighting until I tell you to stop'. Just, a few little things like that. Then I'll just say, 'good luck', and again, it's just that politeness to go over and offer a hand or a fist-bump, just so that again, they know who they've got in there with them ... If I sort of convey that command from the get-go, then that can go a long way into getting them to do what I say. (Jon)

The fighters and their teams gather in rows facing the cage, where Baz stands alongside Ali to deliver the rules talk. I note Baz's well-practiced routine for establishing a sense of authority here. Normally soft-spoken, he now projects his voice, emphasising certain words for clarity. At several points, Ali is used as a partner to physically demonstrate legal and illegal techniques; Baz doesn't ask kindly for permission first, he just confidently and assertively grabs and moves Ali, a large and well-muscled man, into position. Occasionally Ali interjects to add detail to what he says, and at other times Baz invites him to cover anything he might've missed. The rules talk is clearly a mutual operation; their collaborative performance makes it clear they work together and share responsibility for officiating fights, covering each other's backs as a unit. Despite the seriousness of their general demeanour, both men inject humour to the process, and both casually swear, breaking formality enough to keep things relaxed. (Field notes, July 2018)

During matches themselves, all referees held a preference to say very little, and what they did say always centred on giving clear, unambiguous direction to fighters. During rounds they avoided long sentences or questions, while between rounds they offered only necessary input, such as to check their commands had been understood. Centrally important here was clarity and assertiveness, leaving athletes with no doubt as to either the referee's message or its importance:

When one fighter's fingers find purchase on the chain link in front of where I'm sat, Hugh calmly tells him, 'Let go of the fence'. He does, but seconds later he grabs it again. The command is repeated, with more emphasis; he lets go once more. As Hugh leans forward to get a better angle on strikes thrown in the clinch, the fighter once again slips his fingers into the fence, and the corner team sat directly under the action yell, 'Ref! Ref! He's holding!' To this, Hugh responds without breaking his gaze on the action: 'Be quiet! I can see him!', before shouting to the man, 'Let go!' and slapping the back of his hand. (Field notes, July 2018)

Perception: Building and employing 'intuition'

A referee's ability to adequately perceive and interpret information during the progression of bouts was considered essential by all interviewees and was discussed as being determined by a range of interrelated factors. Firstly, a need to stay exclusively focused on the fighters during each round of active competition was repeatedly emphasised:

You can't switch off at any point. You gotta be ready to, you know, get in on a split second's notice. So it's like, you're kinda constantly zoomed in, you know what I mean? It's hard to take in the periphery of what's going on anywhere else, you're kind of like really zoned-in on these two guys, where they are, what's their relative position, who's throwing what, is anybody in danger? It's like a weird sort of blinkers that you've got on. That's what it feels like to me anyway, when I'm doing it. (Kevin)

To help with this, referees also needed to constantly move into optimal positions to adequately see what was happening. Typically, this meant standing perpendicular to the space between fighters, out of striking range but close enough to intervene immediately if needed, while adjusting height depending on the phase of – for instance – a grappling exchange. Not only is this a physically demanding task, but it also requires sufficient knowledge of martial arts techniques used in MMA (of which there are a great many) to know where they ought to be standing and looking. Consequently, this led interviewees to place a high premium on knowledge of the techniques and tactics of their sport:

We want people who understand the techniques of the sport if they're refereeing. Some people have no interest or even no background in the sport, and they wanna officiate it, and that's not what we're looking for. The athletes don't deserve that! (Frank)

At events where referees are working in a small team and overseeing a long evening of matches, the physical demands of constantly moving into correct positions raises the prospect of fatigue impacting on their performance, as important information may thereby go unnoticed:

The hot summer evening has felt particularly long; Ali and Baz have worked a card of almost twenty fights between them, and were both dripping with sweat before the night was half done. I catch Baz's eye at cageside between rounds. 'Bloody hot,' he moans, showing me his damp towel. 'Gotta stay hydrated, mustn't lose concentration, miss anything'. I ask him if he's concerned about his performance; 'Oh, always,' he replies, 'but this is why we stay in shape. Easy to miss stuff, slip up if you're knackered'. (Field notes, July 2018)

Echoing the notion of having an intangible 'feel for the game' mentioned elsewhere [e.g., Slack et al. 2013], MMA referees also see their work as 'quite an intuitive thing' (Jon). In this sense, their ability to read the body language of fighters, anticipate their movements, interpret the condition of a losing opponent and correctly surmise their chances of success all in the split-seconds between strikes are key perceptual skills informing decisions on where to move next, what to look at, what to say (if anything), and whether or not to make a stoppage decision:

It comes down to reading a fight and not just watching it; what's the story that's unfolding here, what's the picture that's being painted in front of me? You need to trust yourself to build that sense of what's going on. (Hugh)

All referees affirmed that the ability to demonstrate such competence was essential for safe and effective work in the cage. This would largely centre on possessing sound technical knowledge of the sport, as well as the confidence to trust their own judgement, in order to accurately and consistently perceive and interpret relevant information. Thus, referees' apparently 'intuitive' perceptual abilities could be seen as an embodied expression of faith in their own accumulated knowledge and skill:

For me to be aware enough, to see enough, feel enough of the fight to make that decision and to be confident and stick by it, that's for me, competency ... In that moment in time, when I do make those stoppages, for me that's the right call and that's the end of the conversation. I'm confident in the call I made, that's what makes me competent [as a referee]. (Baz)

Soft skills: Emotion management, empathy, and reflection

As well as being confident decision-makers, effective communicators, and skilled perceivers and users of information, referees often highlighted the importance of managing their own emotions during fights. As noted earlier, the sport's intensity and high-stakes action can make this a difficult proposition, with referees generally expected to play the part of cool-headed arbitrator, facilitator, and even caregiver in a context where others are seen as highly liable to lose control:

It's the knockout ones, where they wake up and don't know where they are. Sometimes they're more confused than anything, and you can just see fear in some kids' eyes, they're just really fearful and you have to calm them. And if I'm freaking out too, I'm just gonna make the situation worse. I've gotta have a calming voice, I'll usually put a hand on their chest, and just let them know they've been caught, 'fight's over, you've got caught, it's over. The doctor's in now, it's over'. They're the things that we need to be prepared for. (Noel)

Given all the referees involved in this study had prior experience as competitive fighters, and most continued to train in martial arts, it is unsurprising that they would feel empathy with the men and women whose matches they oversee. While keeping one's emotions in check, and visibly sticking to the appearance of objective impartiality during a fight was important, overt displays of such empathy were often observed afterwards:

As a fighter drops against the cage wall, Ali waves off the match. The victorious fighter rushes off in celebration; Ali crouches next to the losing man and talks softly to him, patting him lightly on the cheek. The fighter hangs his head, arms folded around his knees, shoulders gently moving as he seems to sob. I later ask Ali what was said in the exchange. 'Well, it's partly to see if he's awake, but then also, we've done this, we know what it's like and we want them to know we understand, we care about them in those moments. It's not easy to lose'. (Field notes, July 2018)

With respect to the aforementioned need to make stoppage decisions, the institutionally formalised role of the referee as a mediator of fights is indicative of their assumption of the right to decide, on athletes' behalf, when to withdraw their consent for participation [Channon & Matthews 2022]. This act of 'saving them from themselves' was seen as no small moral responsibility, and as noted, has pressing consequences for referees' own emotional wellbeing if they were to make costly mistakes:

If you want the fucking raw, honest truth, ok, I would crumble, I would fucking crumble, and I don't know what I'd do if I walk in a cage, and somebody, three of us walk in, two of us walk back out. I don't know what I would do. (Hugh)

This fear over the 'nightmare scenario' (Frank) of a fighter suffering serious injury or dying on their watch was a powerful motivator for referees to pursue perfection in their work. In this sense, all of the sample stressed the primary need for critical introspection and reflexive self-evaluation as key to one's on-going development. This served to assure the quality of their work and went some way to mitigating the feelings of anxiety they felt over the possibility of failing to adequately protect athletes:

Being honest, being self-critical, that's the way I am ... nobody's a bigger critic of me than I am of myself, and nobody's perfect, I'm always trying to be perfect, but I know I'll never get there. It's a journey, and when I think I've reached the end of that journey, I'll retire. (Hugh)

Teamwork: Professional networks, support, and solidarity

The last consistently cited factor underpinning referees' performance was their ability to work in teams and rely on each other's support. With respect to learning and reflection, their colleagues' critiques were often seen as vital in assisting their own developing understanding of the sport, as was the opportunity to critically evaluate others' work. For the less experienced interviewees, the chance to work alongside a more senior colleague became something of an informal apprenticeship that complimented any unofficial training courses available to them:

I think that by and large, the best training that you get is being critical of your own performances. And having peers that are constructive, but brutally honest. (Jon)

I did the [unofficial referee training] seminars [run by Hugh], but really Ali basically took me under his wing ... for me it was important that I learn what is going on and I felt the best way to do that was hang around, observe, learn from others like him. (Baz)

Indeed, recognising that the organisational infrastructure of MMA remains in its infancy and regulation in many countries is either fragmentary or non-existent [Vertonghen et al. 2014], establishing wider networks of peers was seen as essential not only for the development of individual referees [e.g., Parsons & Bairner 2015; Slack et al. 2013], but also as a means to help with the development of the sport more broadly. Collectively, referees could thereby uphold and promote good standards in lieu of formal governance structures:

[In the unregulated UK MMA environment], it's every man for himself. And I say that loosely, in a sense that, you know, the officials stick together so to speak, and there's a handful of officials that make sure all the shows abide by the rules. We do what we can to make sure there's some standards in place, raise the bar for everyone else, you know. (Ali)

In the more immediate context of individual MMA events, having colleagues on hand to help advise on procedural decisions, reflect on match outcomes, enforce cageside discipline, or otherwise carry out other supporting tasks was considered very useful:

You should never work an MMA show alone, it's far too demanding, too draining. (Hugh)

A lot of the shows you go to there's at least two or three other referees, so you've at least got someone to have a discussion with, say the cage padding looks a bit dodgy, you can bring someone in, have a look and talk about it, like 'what do you think? How can we fix it, is it fixable?' So, I think it's very rare

that I'd go on and be on my own as a referee and have to make all the decisions myself. You'd usually be in a group where you can at least run things over between you and kind of use the hive mind a little bit to try to come up with a solution. (Kevin)

Finally, as well as working with other officials, referees also understood the need to proactively connect with other staff, such as event medics, to facilitate their own and others' work. Such alliances allowed them to coordinate their efforts more effectively, and even push back against what they saw as dangerous or unethical decisions from others. Such teamwork was often considered mutually beneficial and sought out by these other staff as much as by the referees themselves:

Midway through the night, the medics are asked by the promoter to check and clear a fighter who'd already lost his match via TKO, who he wants to put out again to replace a late withdrawal. This would keep a fight on the card that would otherwise be cancelled, but it's clearly a risk to the man's health. The medics are agitated and uncomfortable with the prospect, but the promoter isn't hearing their complaints. A few minutes later, there is a buzz of activity among the medics and referees. I see Baz and Ali talking angrily with each other, then Baz walks past us swearing, 'I'm not doing it mate, I'm not ref-fing this shambles'. Ali finds, and yells at, the promoter's staff; I watch him from a distance as he gestures unambiguously with his arms – the fight is off, or else it won't have a referee. Rose, a paramedic, soon returns to her seat beside me. 'The refs sorted it,' she says with a grin; the fight is indeed off. 'Teamwork!' (Field notes, May 2018)

DISCUSSION: IMPLICATIONS FOR APPLIED SPORT PSYCHOLOGY

It is important to recognise the unique circumstances of any sporting context when advocating for psychological interventions to support its athletes, coaches, and indeed, officials. With respect to the context of MMA referees' work, principal among such concerns is the ever-present danger of catastrophic injury occurring during matches, coupled with the general tendency among fighters, their coaches, spectators, and other stakeholders to approach these risks in ways which potentially trivialise, and sometimes outright ignore, athletes' welfare or wellbeing [Channon 2020; Lenartowicz, Dobrzycki & Jasny 2022]. That referees are largely left shouldering the responsibility for protecting athletes in a social context that is highly conducive to causing them damage lends a sense of urgency to their work that they are well aware of, and which should be addressed by any form of professional support provided to them. Indeed, wrong decisions by referees can potentially lead to a fighter's injury or even death, which is unlikely to be as pressing or immanent a concern for referees working in other sports, or for the athletes and coaches that sport psychologists might otherwise have experience of working with.

Sport psychology practitioners might start their work exploring this sense of responsibility by foregrounding MMA referees' decision-making processes. Here, case studies can be used to discuss a variety of situations for referees, based around applying and evaluating the use of criteria for stoppages or other important scenarios in both real and hypothetical situations. Case studies might be presented in a written form,

or perhaps more usefully in video format. This could involve watching videos from their own earlier matches, or clips of others' (controversial) refereeing decisions. This may benefit both novice referees who still lack experience in the field, as well as more experienced referees who might want to engage in critical self-reflection. Ultimately, such work can also lend itself to developing the sense of confidence outlined above as a key component of competency, helping to build self-belief through repeated practice, imagery, observation, and refinement of this core sense of practical understanding [see Hall et al. 2009].

Developing communication skills, with a focus on how to communicate information to coaches and athletes before, during and after fights, is another potentially fruitful area that applied sport psychology practitioners can help referees with. One such strategy might take the form of exercises that focus on creating short and clear messages to the fighters, that they will be able to comprehend during or immediately before bouts in particular – these being periods where fighters are likely to be intensely focused on fighting, and/or dealing with particularly strong emotional activation [Vaccaro, Schrock & McCabe 2011]. As noted by Simmons [2006], effective communication strategies can also help with developing confidence in referees.

In this sense, MMA referees can work on creating a 'cage persona'. Identifying ideal attributes and qualities of such a persona can involve reflecting on questions such as 'how will this persona make sure that fighters and coaches listen to me before, during or after a fight?'; 'how will this persona show that I am confident and knowledgeable?'; 'what will this persona do if someone starts arguing with my decisions?'. This exercise can have two aims: working as a form of self-directed performance profile, to help identify necessary skills and qualities for a referee, while at the same time helping to develop impression management strategies [see Manley & Thelwell 2016]. This created persona might also work as a safety cushion for when in doubt; 'what would the persona do?' Hence, creating a cage persona might help with clarifying and developing a strong self-concept around unambiguous notions of what kind of a referee one aspires to be, and assist with reflecting this confident version of the self to others.

Communication outside of the context of competitive events might help to build rapport between referees and coaches/fighters, creating more respect and understanding between them [Slack et al. 2013]. Seminars on rules and officiating practices, given by referees at MMA gyms and clubs, might be one mechanism for achieving this. These could perhaps be facilitated by sport psychology practitioners working with referees, who might offer mental performance workshops to the athletes there as an additional incentive to take part. Alternatively, digital resources might be created such as video analysis of fights by groups of referees for dissemination among practitioners online, as some studies show that watching a video of their most recent matches, accompanied by explanation of the referees' point of view and accounts of their decision-making process, helps with communication and rapport building with athletes and coaches in other sports [e.g., Mascarenhas et al. 2005]. However, this might be difficult to apply in MMA, given the sport's tendency to lack central governance in many contexts, meaning a possible lack of the general organisational coherence that might facilitate this

out-of-competition communication. This would mean relying instead on referees' existing contacts, among whom such rapport building may not be quite as necessary.

In general, referees may benefit from learning about mental toughness attributes [Slack et al. 2013]. While there are numerous variables that might be seen as comprising mental toughness [Plessner & MacMahon 2013], exactly which to focus on depends on the individuals concerned. For MMA referees, working with an applied sport psychologist can help create personalised inventories of such attributes; these can then be used to develop coping strategies which could be useful for dealing with the sport's pressures that they feel most acutely, such as handling abuse from fans, or maintaining focus during bouts. Given the discussion outlined above, combat sports referees might benefit specifically from learning about different emotional coping strategies, such as practicing calm in the face of hostility, not taking things personally, and emotional distancing from public aggression [Devís-Devís, Serrano-Durá & Molina 2021]. In addition, referees can use self-talk techniques to regularly remind themselves of their own expertise, which is usually much greater than that of fans in the audience, to help diminish the impact of any abuse from the crowd [Simmons 2006]. This will be especially important for younger or novice referees, who may lack practical experience and might therefore be prone to doubting themselves more when confronted with social disapproval.

Following this, sport psychology practitioners can help referees to process their own emotions, especially if referees doubt their decisions or feel that they may have misjudged a situation in a fight. Analysing errors, accepting that one cannot be perfect all the time, perceiving errors as something temporal and something to learn from [Wolfson & Neave 2007] can all be very fruitful areas for such work. In this case the use of imagery might again be beneficial, either for retrospective replaying of a problematic situation and making a different decision for evaluation, or for helping to anticipate future similar situations. Developing critical self-reflection and clarifying one's own philosophy will yet again help contribute to the confidence that is so important in this job, whilst helping to understand, accept and manage the impact of the work's emotional strain.

Lastly, communicating openly with other referees (or indeed, a sport psychologist) about the aforementioned issues can simply create a safe space to vent frustrations or reflect on experiences [Simons 2010]. As noted throughout this paper, having social support is very important, particularly given the nature of officiating in a sport where one's core concern – athletes' safety – may be overlooked by many others, not to mention the other cognitive and emotional demands of the work; the abuse one might endure; and so on. However, referees should also remain cognisant of the limitations of both each other's and sport psychologists' professional remit, as such confidants often cannot provide counselling in the case of more complex emotional disturbances. Referral to clinical practitioners could be necessary to help cope with traumatic responses to fighters' serious injuries or similar situations [Van Raalte & Andersen 2014].

CONCLUSION: LIMITATIONS AND FURTHER RESEARCH

The qualitative, multi-method ethnographic research informing this paper has allowed us to offer a detailed discussion of the roles of MMA referees and draw attention to several opportunities for using sport psychology to positively impact their work. At the cost of lengthy and abstract conceptual discussion, we have focused instead on offering a detailed description of a range of empirically evidenced phenomena, with the intention of forming up recommendations for applied practice. To that end, we are confident that this article paints a vivid picture through which colleagues might better understand the nature of MMA refereeing, as well as feel better prepared to engage with practitioners in this field, and/or those in related sports.

However, as with similar qualitative investigations, our methodological approach suffers from a lack of breadth. With only a very small sample of participants, all of whom were male, the findings cannot be assumed to be generalisable to the entire population of MMA referees. It is highly likely, for instance, that female referees may experience the same types of issues noted here, but also face further unique challenges [Hancock et al. 2021; Webb 2022] in this numerically male-dominated and reputedly 'masculine' sport. Moreover, the location of all the observations in England limits the scope of the events witnessed, particularly owing to the unregulated nature of MMA in this country at the time of the study. In contexts where governance structures exist to regulate the sport and referees' roles within it, it is possible that different practices might exist and/or other problems or issues mark the experience of officials in the sport [e.g., Webb 2017].

Nevertheless, we remain confident in the value of this descriptive account of the work of MMA officials. If nothing else, we believe it goes a long way to revealing some of the core challenges and tensions involved in this work, which are both similar to, but also in some respects significantly different from, those evidenced by research on officials in other sports. We hope that colleagues involved in both research and practice find our efforts useful in shining light on this under-researched but fascinating group of sports officials.

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