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Referee Abuse, Intention to Quit, and Well-Being

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ABSTRACT

There are growing levels of abuse toward match officials in sport as well as general problems of their recruitment and retention. **Purpose:** This study analyzes the role that physical and nonphysical abuse has on association football referees' intentions to quit and their personal well-being. **Methods:** Drawing on pooled survey data of association football referees from the UK and Canada, this paper employs probit, ordinary least squares, and treatment effects regression analyses to explore the casual relationship between the physical and nonphysical abuse faced by referees, their intention to quit and their well-being. **Results:** Although physical abuse is less common than nonphysical abuse both affect the intention to quit and well-being of officials. Moreover, those that do not contemplate quitting also face reductions in their well-being. **Conclusion:** The research recommends a zero-tolerance approach to all forms of abuse of officials in sport and identifies that organizations have a duty of care for the well-being of their officials.

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Match officials are central to the provision of sporting competition because they act on behalf of sports organizations to facilitate fair sporting competition according to the laws of a sport (Hancock et al., 2020; Warner et al., 2013). Moreover, their unique position of “ontological authority” giving them the “final say” in sporting decisions is founded on their “epistemological privilege” deriving from their proximity to the competition and competitors on the field (Collins, 2010). However, there is a long-standing concern within sport of the attrition of match officials (Cuskelly & Hoye, 2013) and, particularly on-field match officials in association football, i.e. referees (Webb, 2017). Whilst the loss of match officials is bound up in a wider general human resource issue of recruitment and retention in sport, particularly at the grassroots level (Seippel et al., 2020), there is increasing evidence that this is also due to the growing abuse of officials (Livingston & Forbes, 2017) which is particularly pronounced in association football (Cleland et al., 2018).

Reflection on the abuse of officials forms part of a growing, more general, literature on match officials that is diversifying in scope (Aragão e Pina et al., 2018; Hancock et al., 2020; Mojtahedi et al., 2022). One aspect of the literature has been a focus on match official decision making *about* their role, exploring the personal, organizational, and management influences shaping the decision to become and remain a match official or not (Aragão e Pina et al., 2018). The recruitment of match officials has been shown to be historically problematic in sports (Warner et al., 2013), and this is still identified to be the case in association football with a need for talent identification and support in their career progression (Webb et al., 2020). As Cuskelly and Hoye (2013) argue, moreover, the retention of match officials generally involves the interaction between the commitment of the individuals and the

organizational support that they are provided. The literature emphasizes the importance of administrator support and mentoring for officials, as well as the sense of community they feel and opportunities for continued education and training. Factors that are also important include officials' intrinsic motives coupled with their remuneration and, importantly in the case of abuse, a lack of stress (Ridinger, Kim, et al., 2017). Support for officials could be tacit, through reference to role models (Tingle et al., 2014; Wicker & Frick, 2016). Alternatively it could be provided formally by governing associations such as through mentoring and training (Ridinger, 2015; Webb et al., 2019), or through the camaraderie of teamwork (Phillips & Fairley, 2014). Consequently, the absence of these, such as a lack of respect from male counterparts, the perceived inequality of organizational policies, a lack of role models and mentors as well as gendered abuse have been identified to be important factors associated with female officials quitting (Tingle et al., 2014). In general, internal motivation and commitment as well as family support, can be linked to match officials' retention (Dawson et al., 2021; Hong et al., 2019; S. Kim, 2017; Voight, 2009).

The literature also addresses officials' decision making *within* the role. This includes substantial investigation into the bias and inconsistency of decisions because of, amongst other things, home advantage (Boyko et al., 2007; Dawson et al., 2007), the influence of the crowd (Nevill et al., 2017), shared identities between on-field match officials and (one of) the teams involved (Dawson & Dobson, 2010) and the influence of decision-making technology (Dawson et al., 2020; Spitz et al., 2021). The analyses focus on discretionary decision making. In the context of association football this includes the awarding of red and yellow cards (Buraimo et al., 2010), awarding penalty-kicks (Dohmen, 2008) and granting of extra

time (Garicano et al., 2005; Sutter & Kocher, 2004). The evidence shows that even in the context of a balanced schedule of home and away fixtures, home teams benefit from decisions more than 50% of the time, but this is not the result of malfeasance and appears to be the case across many sports (Dawson et al., 2020).

Literature has also explored the physical and mental ability of match officials to take important strategic decisions in a game. There are substantial physiological demands placed on officials, particularly at the elite level (Ahmed et al., 2017; Weston et al., 2012). However, there are also large psychological pressures involved. On the one hand officials face substantial perceptual-cognitive stresses associated with making crucial complex decisions that can determine the outcome of a game, in an extremely short window of time (Aguirre-Loaiza et al., 2020; Anshel et al., 2013; García-Santos et al., 2020; Guillén & Feltz, 2011). On the other hand these stresses are augmented by having to work within officiating teams requiring coordination and communication (Helsen & Bultynck, 2004).

Other stresses facing match officials are numerous. They can be linked to conflicts between their officiating and family commitments (Hong et al., 2019; Voight, 2009), the fear of failure (Titlebaum et al., 2009), feelings of isolation from other stakeholders in the sport (Phillips & Fairley, 2014), but also, which is the central focus of this research, the fear of physical harm and intimidation along with psychological intimidation (Dell et al., 2016; Forbes & Livingston, 2013; Titlebaum et al., 2009). Crucially, Cuskelly and Hoye (2013) identify that coping with stress is of paramount importance to the retention of match officials and this cannot necessarily be compensated for by, for example, organizational support. It follows that not only will abuse likely have a direct effect on the decision of officials to leave their role and their well-being, the impact of the decision to leave the role will further affect their well-being, as this implies ceasing to undertake an activity that was previously desired. For example, it is known that adverse and stressful life events such as illness, divorce, unemployment, or widowhood can reduce the well-being of individuals (Clark & Georgellis, 2013; O'leary et al., 2020). Further, it is known that reductions in well-being and a deterioration in mental health can follow from abuse between parents and children (Strathearn et al., 2020), between partners (Spencer et al., 2019) or at work (Gale et al., 2019).

The existing literature that has investigated the impact of abuse on match officials has been broadly qualitative, offering rich insight into the experiences and context of the abuse and the intention to quit (Jacobs et al., 2020; Webb, 2017; Webb, Dicks, et al., 2019). The research also identifies that the experiences of female officials are worse than males because of sexism and additional “gendered aggressions,” as well as the stigmatization of mental health impacts (Tingle et al., 2022; Webb et al., 2021). This is not surprising given that it is argued that female officials have to develop a career within organizations that have a historic male emphasis (de Haan & Warner, 2020). Unlike the wider literature on officiating (Hancock et al., 2020), however, the impact of abuse on referee intentions to quit and factors associated with referee well-being has only recently been investigated in quantitative analysis. In the first

case, as part of a wider enquiry into the decision of volunteer referees to continue in their role, Giel and Breuer (2020) identified that the ratio of games in which a referee experiences “offenses” against them is associated with a reduction in their intention to continue. Dawson et al. (2021) also showed that both physical and verbal abuse are closely associated with each other and the intention of on-field match officials to quit. In the second case, two studies suggest that first, officials identifying meaning in their roles as well as belonging to a supportive organization improved their job satisfaction and well-being; and, second, officials finding engagement through their activity in a supportive environment in which they could act authentically did likewise (M. Kim et al., 2019, 2021). It is argued, therefore, that there is a need for further well-being and mental health research in the case of match officials who experience abuse (Gorczyński & Webb, 2020; Lima et al., 2022). Moreover, the above review suggests that the causal relationship between intention to quit and well-being remains to be addressed.

Purpose of research

The purpose of this research is to develop our understanding of the relationships between physical and nonphysical abuse, the intention to quit of referees and their well-being. Three research questions are posed. The first is “do physical and nonphysical abuse directly influence the intention to quit of referees?” The second is “do these forms of abuse directly influence their well-being?” The third is, “does the intention to quit of referees also affect their well-being?” This is to further inform sports organizations of the full impact of abuse on their officials and their development of organizational responses to it. Sports organizations thus may need to re-assess their support for officials particularly given that “mental health promotion involves actions that improve psychological well-being.” (World Health Organization (WHO), 2021 para #7). This claim involves recognizing that although well-being and mental health have distinct elements they are also highly correlated and the former can be understood to represent the positive component of mental health as distinct from, for example, mental illness (McAneney et al., 2015; Steptoe et al., 2015; Steptoe, 2019; Tingle et al., 2022).

Material and methods

Sample and variables

An online survey was distributed by the national Referee's Association in England and Soccer Ontario in Canada to their members over the period between the 10 December 2020 and the 15 March 2021. Ethical clearance was obtained from the lead author's institutional review board. For England 485 responses were obtained and for Canada 410 responses were obtained.

As the sampling period coincided with the Covid pandemic, questions were framed in terms of the last full season of refereeing. The first outcome variable of well-being was measured based on the UK government Taking Part Survey that examines sport art, cultural, and heritage participation

(Department for Culture Media and Sport, 2014). The question asked: “Taking all things together, how happy would you say you are?” Responses range from “0” – extremely unhappy to “10” extremely happy.

It has long been recognized that the use of such measures, that can best be thought as offering a discrete response format to an underlying continuous variable whose range of values can vary (Carifio & Perla, 2007), can help to indicate an individual’s overall cognitive assessment of their quality of life (Frey & Stutzer, 2007). The theoretical basis of such claims lies in economic theory and that the underlying variable measures an individual’s experienced utility as a measure of hedonic well-being (Dolan & Kudrna, 2016). This theoretical approach has underpinned a large research agenda in which analysis proceeds through regression-based models (Dolan et al., 2008). Consequently, a single-item measure of well-being is used in the research noted above associated with the impact of adverse life events on well-being (Clark & Georgellis, 2013; O’leary et al., 2020). A single-item measure is also employed in exploring the impact of engagement with sport on well-being (Downward & Dawson, 2016; Downward & Rasciute, 2011; Ruseski et al., 2014; Wicker et al., 2015) and, indeed, their use now forms part of the UK government’s recommended methods to be used in evaluating public investment through its impact on individual quality of life (Fujiwara & Campbell, 2011; Treasury, 2022) as an efficient overview of outcomes (Ruggeri et al., 2020).

Alternative multi-dimensional measures of well-being exist and have been employed in the literature noted above (M. Kim et al., 2019, 2022). Such measures have been identified to be more oriented toward intrapsychic dimensions of flourishing, functioning, and affect as eudaimonic measures of well-being that are distinct from the evaluative hedonic measures (Cooke et al., 2016; Steptoe, 2019). Importantly, single-scale items have been shown to perform as well as multi-item scales in terms of their reliability and validity and, on this basis, it is argued that they are useful in their own right as an overall evaluation of well-being (Cheung & Lucas, 2014; Diener et al., 2013; McDowell, 2010). Multi-dimensional measures may thus give further insight into the details of flourishing (Huppert & So, 2013) and provide some granular foci for policy seeking to improve eudaimonic well-being (Diener et al., 2013) or targeting specific dimensions of well-being (Ruggeri et al., 2020).

Following Dawson et al. (2021), the second outcome variable, referee intention to quit, was constructed as a binary variable indicating if the referee had considered quitting or not. The extent of physical and nonphysical abuse experienced by referees was measured in each case on a scale ranging from “Every game” to “Never.” Physical abuse was defined as “unwanted physical contact such as invading your personal space, pushing or punching etc.” Nonphysical abuse was defined as “as ridicule, humiliating or aggressive remarks, threats and gestures etc” (Nicholson & Hoye, 2005; Stirling, 2009).

Informed by the methodological approach adopted for this research, discussed below, confounding variables that could influence both the referee’s well-being and intention to quit were identified based on the literature. The referee’s age, as well as income were measured as well-known factors affecting

well-being (Blanchflower, 2021; Ferrer-I-Carbonell, 2005). Eight variables were used to measure referee motivations on a five-point scale ranging between “Very important” to “Not important.” The variables explored both internal and external motives as: the importance of providing opportunities for others, to keep fit, to be involved in football as a non-player, to stay involved with the game after playing football, to social network and make friends, to give something back to the game, to give something back to the community and to add some income. Because the focus was on controlling for the confounding effects of motivations only, a specific motivation scale was not adopted but, rather, these factors were drawn from the more exploratory literature to build a composite confounding variable for the statistical analysis (Johansen, 2015). To this end, the items sought to measure factors ranging from intrinsic motivations such as keeping fit (Johansen, 2015), to extrinsic motives, such as earning income (Kellett & Warner, 2011), and pro-social motives such as giving something back to the community (Baldwin & Vallance, 2016). The use of a composite measure through adding items is common in research when seeking to produce more overall variance in the underlying concept being measured such as, for example, attitudes (León-Mantero et al., 2020) or general health (Downward et al., 2020) and, as such, this is valuable for controlling for confounding influences.

As intention to quit and well-being might be influenced by referee experience, defined both in terms of their longevity but also the number of recent matches officiated, questions identified the number of years that individuals have refereed as well as how many games they refereed in the last full season (Dawson et al., 2021). Finally, the gender, ethnicity, and presence of a partner and/or a family were investigated because of the impact that these might have on the experiences of refereeing in terms of gender (M. C. Kim & Hong, 2016) and ethnicity (Devís-Devís et al., 2021), but also the importance of family support to refereeing (Hong et al., 2019) and its general impact on well-being (DeMaris, 2018). Including such demographic confounders has been identified as important and has typically been overlooked in the previous research of some disciplines (Hancock et al., 2020). All the definitions of the variables and their descriptive statistics are provided in Table 1.

Methods of analysis

To explore the causal impact of physical and nonphysical abuse of referees on their intention to quit and well-being, a series of regression analyses were undertaken consistent with the regression-based literature noted above on adverse life effects and the effects of engagement with sport on well-being (Downward & Dawson, 2016). The focus was upon the pooled sample to contribute to the generality of insights with a fixed-effect dummy variable included in the regression analyses to control for country-level differences. Recognizing the scale and binary measurement of the well-being and intention to quit variables, respectively, a linear regression analysis was undertaken to explore the direct association between physical and nonphysical abuse on referee well-being and a probit analysis undertaken to

Table 1. Variable descriptions.

Variable	Description	Mean	Std.dev
Happy	Taking all things together, how happy would you say you were? 0 - "not at all" to 10 - "completely."	7.050	1.852
Quit	Considered quitting as a referee? 1- Yes; 0 - No.	0.324	-
Physical	Experienced physical abuse every game - 5 to never - 1.	1.942	0.816
Nonphysical	Experienced nonphysical abuse every game - 5 to never - 1.	3.185	0.980
IncomeGBP	Monthly income in £.	2,142.29	1,727.26
Refage	Age in years.	45.271	12.793
Refagesq	Age in years squared.	2,212.854	1,017.048
Refyears	Years of refereeing.	15.939	12.250
Gender	Gender? 1 - male; 0 - female.	0.915	-
Ethnicity	National born and live in UK or Canada. 1- Yes; 0 - No.	0.844	-
Family	Referee has a partner and/or children. 1 - Yes; 0 - No.	0.764	-
Relevel	Level 3 referee or above. 1 - Yes; 0 - No.	0.052	-
Reftype	Paid remuneration rather than expenses or pure volunteer. 1 - Yes; 0 - No.	0.815	-
HE	Has a degree/professional qualification. 1 - Yes; 0 - No.	0.649	-
UK	Referees in the UK. 1 - Yes; 0 - No.	0.565	-
Canada	Referees in Canada. 1 - Yes; 0 - No.	0.435	-
Refgameslast	Number of games refereed in the last season	41.601	24.450
Currentref	Currently able to and officiating. 1 - Yes; 0 - No.	0.433	-
RefmotiveAll	Sum score of referee motivations	26.391	5.291
n = 639			

explore the direct association of physical and nonphysical abuse on the intentions to quit of referees. In these equations, the variables measuring the abuse experienced by referees, their age and age squared, income, gender, ethnicity, family status, referee type and level, collective motives for refereeing, as well as the number of games refereed last year and their current status as a referee were all included as observable controls for the confounding factors influencing the intention to quit and well-being.

Significantly, because the well-being of referees is also expected to be causally affected by the officials intention to quit, because they cease undertaking a desirable activity for them, a treatments effect regression analysis was also undertaken. The treatment effects analysis focusses on identifying the causal impact of a binary treatment (in this case the intention of a referee to quit) on an outcome (in this case well-being) in a non-experimental setting. It provides an equivalent causal inference to experiments when analyzing observational data. Consequently, in an interventional experimental study, the impact of the treatment would be established by comparing the outcomes of the same individual when exposed to the influence of the treatment and when they are not. Comparing the differences across the set of individuals would then identify the average treatment effect. In an observational setting, however, the counterfactual cases of exposing the same individual to the treatment and then not doing so is impossible (Morgan & Winship, 2015). Moreover, the allocation of the treatment is not randomized as in the case of a randomized controlled trial. Under these circumstances, the treatment and outcomes may not be independent as there could be systematic selection into the treatment state. The treatment effects regression can help to produce causal inference by including *observable* characteristics that could affect the treatment and outcome. This is why the analysis contains the confounding variables identified above. Including them provides a regression-based adjustment of the treatment that is used to predict the potential outcomes of experiencing the treatment or not. Comparing the potential outcomes then identifies the average treatment effects.

One issue with the treatment effects regression is that *unobservable* factors could also influence both the treatment

and outcome. For example, an official with a more vulnerable, less resilient disposition might have a lower well-being which increases the likelihood of their quitting (Symonds et al., 2022). An endogenous treatment effects regression can account for this through providing a control-function approach to instrumental variables estimation (Wooldridge, 2015). It takes the residuals from the treatment regression and includes them in the equation that models the difference in potential outcomes. These residuals account for any unobserved correlation between the treatment and the outcome. The approach is like instrumental variables estimation and, as with that approach, requires variables in the treatment equation to be validly excluded from the outcome equation (Vella & Verbeek, 1999). To facilitate this analysis, the number of games refereed last year and the referee's current status were used as instrumental variables on the assumption that they are more likely to be connected to the treatment—intention to quit—than the outcome—well-being. In part, this is based on theoretical reasoning. For example, those who refereed more last season and those currently refereeing—if able to despite the pandemic—demonstrate a deeper commitment to refereeing which is more likely to be behaviorally connected to their role than their well-being (Ridinger, Kim, et al., 2017; Webb et al., 2020). However, importantly, the validity of this exclusion restriction is tested.

In summary, the treatment effects regression gives insight into the causal effect of abuse on well-being through the effect that abuse has on intention to quit. It also provides a framework within which to assess the potential for making causal claims from the linear and probit regressions because it facilitates a test of the endogeneity of well-being and intentions to quit. An absence of endogeneity would mean that the observable factors included in all the regressions capture the causal relationships between well-being and intentions to quit. Finally, it provides insight into the potential counterfactual effects of the impacts of abuse on well-being by identifying the effects of abuse on those that have considered quitting compared to those that have not.

Results

Descriptive statistics

Table 1 reveals that the combined sample used for analysis was $n = 639$ after accounting for missing values across the variables—notably income. The data reveal that referees score a mean value of 7.050, with standard deviation of 1.852 on the happiness scale. This is consistent with, for example, Downward and Dawson (2016) who identify a mean value of 7.750, with standard deviation of 1.667, for this variable in the Taking Part Survey, from which the variable definition is taken. Importantly, the mean score of the frequency of physical abuse lies below the midpoint of the scale suggesting that it is typically rare or very rare which is an important qualifying insight given the high-profile media coverage to incidents, for example, of physical violence against referees. In contrast the mean and standard deviation of the nonphysical incidence of abuse suggests that it is typically occasional but can also occur very frequently or rarely. Overall, these data suggest that non-physical abuse is more likely than physical abuse. Table 2 provides further details on the physical and nonphysical abuse of the referees. Importantly, the data reveal that the most prevalent form of physical abuse is the invasion of personal space more than direct physical contact, with 44.99% of respondents indicating that this occurs more than rarely. In contrast, there are consistent patterns of nonphysical abuse connected with the use of threatening body language, remarks and swearing, with 56.29%, 69.45%, and 62.42% of officials, respectively, indicating that these occur other than rarely. These results are broadly in line with previous research in which it is argued that 60% of football referees experience nonphysical abuse and 19% some form of physical abuse over the season (Cleland et al., 2018).

Table 1 also provides the descriptive statistics for the confounding variables. The mean income of referees is approximately, £2,142 per month and their mean age approximately 45 years old. The referees have an average experience of approximately 16 years, but this can range from a low of approximately 3 years to a high of approximately 27 years based on the standard deviation. Approximately 92% of the referees were male, and of these 56.5% were from the UK and 43.5% from Canada. Seventy-six percent of the referees has a partner and/or children. Only about 5% of the referees were at level 3 or above, the entry-point for the professional game and about 82% received remuneration for their activity as opposed to only receiving expenses or being a pure volunteer. Around 65% of the referees had higher education or equivalent. The data also show that the referees typically officiated

between 18 and 66 games last full season, and about 43% of the referees at the time of the survey were currently officiating. Finally, the typical score for the aggregate referee motives variable was approximately 26, with a standard deviation of approximately 5. Given the linear assumption made in combining the items (León-Mantero et al., 2020), for ease of interpretation, the mean value and standard deviation of the combined motive score translates into an average score of approximately 3 for each motivation, with a standard deviation of approximately 1. This suggests that each motivation might be viewed as being either important, moderately important, or slightly important which suggests that there is considerable variation in the summative confounding variable to control for differences in motivation.

Table 3 provides insight into the context of the nonphysical and physical abuse faced by referees based on insights from supplementary questions exploring each form of abuse. As indicated in the discussion of Table 1, the data reveal that nonphysical abuse is more common than physical abuse and the modal responses indicate that the former is more likely in connection with referee sanction—awarding red and yellow cards and penalties—as well as offside decisions and disallowing goals. These incidents are also the occasions for which physical abuse can be more likely as well, although not as a modal incidence. As indicated in the literature on referee bias, these contexts are clearly important strategic moments in association football. Instances where nonphysical and physical abuse are less likely, as indicated by the modal categories, are: warning a player, awarding corners, playing injury time and when there is an injury to a player. Finally, the results also suggest that physical and nonphysical abuse can be related as identified in the literature (Dawson et al., 2021). The invasion of personal space as the main form of physical abuse through threat is clearly consistent with this finding.

Regression results

Table 4 presents the regression results and evidence that the associations in the least squares and probit regressions can be considered to be causal. This is because the treatment effects analysis reveals that there is no endogeneity associated with well-being and intention to quit, based on the same observable factors included in the analyses. The lack of endogeneity is indicated by the insignificant endogeneity test result at the bottom of Table 4. This result indicates that there are no unobservable factors influencing both well-being and intention to quit.

Table 2. Type of abuse when experienced.

	Always %	Very often %	Sometimes %	Rarely %	Never %	n
<i>Physical</i>						
Invasion of personal space	4.55	12.38	28.06	21.94	33.07	638
Pushing or grabbing	0.47	0.47	4.42	28.86	65.77	634
Physical blow e.g., slap or punch	0	0.32	1.11	12.03	86.55	632
<i>Nonphysical</i>						
Threatening gestures/body language	4.56	16.82	34.91	31.6	12.11	636
Threatening remarks or comments	7.87	21.89	39.69	22.99	7.56	635
Hostile swearing directed at you	5.97	20.44	36.01	28.77	8.81	636

Table 3. Context of when abuse takes place.

Context	Abuse experienced	Always %	Very frequently %	Occasionally %	Rarely %	Very rarely %	Never %	n
Warning a player	Nonphysical	3.34	13.99	30.84	20.03	21.3	10.49	629
	Physical	0.64	5.56	18.6	12.24	15.1	47.85	629
Yellow card awarded	Nonphysical	3.8	20.09	39.4	15.51	13.13	8.07	632
	Physical	1.27	9.35	22.19	12.04	13.79	41.36	631
Red card awarded	Nonphysical	10.95	33.02	29.84	11.59	8.41	6.19	630
	Physical	4.25	17.01	22.2	12.13	7.09	37.32	635
Penalty awarded	Nonphysical	8.06	28.75	38.07	10.27	9.79	5.06	630
	Physical	3.65	15.06	19.97	9.67	11.09	40.57	631
Corner awarded	Nonphysical	0.64	2.4	17.28	20	30.4	29.28	625
	Physical	0.32	0.95	5.25	11.92	17.01	64.55	629
Played injury time	Nonphysical	0.95	3.34	13.2	18.76	30.84	32.91	629
	Physical	0.32	0.95	6.04	10.81	17.33	64.55	629
Offside decision	Nonphysical	3.15	20.35	36.75	16.25	12.93	10.57	634
	Physical	0.63	6.8	15.35	12.03	12.97	52.22	632
Disallowed goal	Nonphysical	8.98	22.83	32.28	16.85	10.39	8.66	635
	Physical	1.9	12.54	17.46	11.11	11.43	45.56	630
Injury to a player	Nonphysical	3.33	13.31	27.26	20.92	19.18	16.01	631
	Physical	1.12	7.18	13.56	12.12	14.67	51.36	627
Aggressive tackle	Nonphysical	7.09	26.61	35.28	12.76	11.5	6.77	635
	Physical	2.38	12.88	18.76	10.65	12.72	42.61	629
Physically abused already	Nonphysical	5.89	12.26	21.82	14.01	15.29	30.73	628
Non-physically abused already	Physical	3.18	11.15	15.92	13.54	11.94	44.27	628

The regression results provide answers to each of the research questions. For the first research question, “do physical and nonphysical abuse directly influence the intention to quit of referees?,” the results reveal that nonphysical abuse is shown to be directly associated with a reduction in well-being. However, as indicated by the F-test results at the bottom of the table, a reduction in well-being is jointly associated with the influence of nonphysical and physical abuse, as a test of the joint omission of these variables from the regression can be rejected. The same result is observed in the treatment effects analysis as indicated by the χ^2 test. Both forms of abuse are shown to be individually associated with an increased intention to quit. Although the data of Table 2 reveal that physical abuse is much less common than nonphysical abuse as identified by Cleland et al. (2018), therefore, the regression results confirm the collective impact of both forms of abuse on the intention to quit of officials, as identified by Dawson et al. (2021). The results also answer the second research question, “do these forms of abuse directly influence their well-being?” because they show that both forms of abuse influence well-being directly through being adverse events. The treatment effects analysis further extends these insights, by answering the third research question, “do physical and nonphysical abuse directly influence the intention to quit of referees?.” The average treatment effect (ATE) shows that there is also a fall in well-being *due to* the intention to quit of referees. These results provide affirmative answers to the two research questions: “do physical and nonphysical abuse directly influence the intention to quit of referees and their well-being?” and, “does the intention to quit of referees also affect their well-being?”

The treatment effects analysis also, however, provides insight into the counterfactual-outcomes case of officials experiencing abuse *but not considering quitting* through consideration of the potential outcomes. The latter show that

nonphysical abuse can also reduce referees’ well-being but suggest that some referees are willing to accommodate abuse as a cost to their well-being without this impacting on their willingness to continue in their role. This potentially indicates their resilience to an unwelcome experience. As discussed in the literature review, given that income and motivations are controlled for in the analysis, which have been identified with reducing intention to quit (Ridinger, Kim, et al., 2017), in the current research this resilience could reflect support from role models (Tingle et al., 2014; Wicker & Frick, 2016), governing associations (Ridinger, 2015), or camaraderie with colleagues (Phillips & Fairley, 2014).

In terms of the other confounding variables included in the linear and probit regressions, a higher income is associated with the lower well-being of referees. The literature usually identifies a positive association in population-level studies (Sacks et al., 2012). However, in the context of sport, theoretically speaking, higher incomes can imply a time cost on discretionary engagement in activity (Ruseski et al., 2011), which could be the case here, and becoming manifest in lower well-being.¹ The results also indicated that male referees were more happy and less likely to contemplate quitting, which supports the findings that female officials experience worse abuse (Tingle et al., 2022; Webb et al., 2021) and face potentially less support in historically male-oriented associations (de Haan & Warner, 2020). Although the numbers of female referees in the sample was low, this is a cause for concern and clearly indicative of the need for further research (Hancock et al., 2020; Webb et al., 2021). The results also reveal that having a partner and/or children is associated with higher levels of well-being, which is consistent with the general well-being literature (Stronge et al., 2019). Well-being is also shown to be lower in the UK compared to Canada, which again is consistent with the literature (Helliwell et al., 2021), and the motives for refereeing are collectively

¹Further investigation by using categories of income confirmed that the significant negative relationship was evident for the highest income categories with incomes in excess of £3,500.

Table 4. Well-being and quit regressions.

	Happy	Quit	Treatment effects	
	OLS	Probit	Happy (non-Quit)	Happy (Quit)
ATE				
Quit v non-Quit				-0.504*** (-2.94)
Physical	-0.160 (-1.58)	0.264*** (3.42)	-0.194 (-1.50)	-0.102 (-0.64)
Nonphysical	-0.210*** (-2.65)	0.441*** (6.91)	-0.224*** (-2.59)	0.0724 (0.45)
IncomeGBP	-0.000122*** (-2.63)	0.0000265 (0.73)	-0.000128** (-2.15)	-0.000132* (-1.85)
Refage	-0.0230 (-0.41)	0.0280 (0.66)	-0.0801 (-1.17)	0.0727 (0.82)
Refagesq	0.000272 (0.40)	-0.000355 (-0.67)	0.000900 (1.08)	-0.000764 (-0.70)
Refyears	0.00281 (0.43)	-0.00121 (-0.22)	0.00118 (0.15)	0.00696 (0.57)
RefmotiveAll	0.0252* (1.82)	-0.0404*** (-3.65)	0.0255 (1.60)	0.00212 (0.08)
Reflevel	0.0548 (0.17)	-0.274 (-1.05)	0.0392 (0.11)	0.0310 (0.05)
Gender	0.658** (2.10)	-0.379* (-1.88)	0.398 (1.14)	0.697 (1.39)
Ethnicity	-0.100 (-0.45)	-0.0718 (-0.42)	-0.174 (-0.68)	0.0814 (0.21)
Family	0.532** (2.29)	0.182 (1.10)	0.497* (1.80)	0.769* (1.86)
Reftype	-0.246 (-1.29)	-0.228 (-1.47)	0.0787 (0.35)	-1.020*** (-3.09)
HE	-0.119 (-0.75)	0.0253 (0.21)	0.0587 (0.31)	-0.401 (-1.48)
UK	-0.811*** (-3.97)	-0.0852 (-0.54)	-0.522*** (-2.86)	-1.116*** (-3.66)
Currentref	0.272 (1.42)	-0.201 (-1.43)	n/a	n/a
Refgameslast	-0.00237 (-0.72)	-0.00467** (-2.03)	n/a	n/a
Constant	7.810*** (6.70)	-1.132 (-1.28)	9.048*** (6.78)	5.551*** (2.94)
<i>n</i>	639	639	639	639
Physical and nonphysical				
F(2, 622)	7.08***			
$\chi^2(4)$			13.37***	
Exclusion				
Happy F(2, 622)			1.09	
Quit $\chi^2(2)$			6.76**	
Endogeneity $\chi^2(2)$			0.05	

Note. Robust t statistics in parentheses * $p < .10$, ** $p < .05$, *** $p < .01$.

significant in enhancing well-being and reducing intention to quit, the latter as identified in the literature (Ridinger, Tingle, et al., 2017). Finally, the results show referees that officiated more games last season are less likely to contemplate quitting, although this does not affect well-being directly. As indicated above, this persistence of behavior reveals a behavioral commitment to refereeing. The results further support the use of the variable as an instrument in the treatment effects analysis.

Discussion

Some practical implications follow from the research findings. The research demonstrates the importance of adopting a zero-tolerance approach to all forms of abuse as argued by Dawson et al. (2021), because of their related impacts. The descriptive data show that the most common form of physical abuse is the invasion of personal space, and this naturally tends to relate to the threatening body language, gestures, and remarks that are

linked to nonphysical abuse. The literature suggests that the unique proximity of referees to the play, that gives them their historic “ontological authority” and “epistemological privilege” (Collins, 2010), is also a key source of their vulnerability (Cleland et al., 2015). It follows that sporting authorities should seek to provide stronger guidance on who can speak to officials, how they speak and how close players can get to referees. One suggestion would be that, as in rugby, only the captain should speak to the official and in a courteous manner. However, it should be recognized that abuse is growing in that sport as well (Webb, Dicks, et al., 2019). Moreover, such rulings also clearly require authorities to fully support and resource their enforcement, although current initiatives do not appear to have worked in association football and are indicative of a governance failure (Webb et al., 2017). It follows that substantial challenges for sports organizations persist and that if unchecked abuse will continue to contribute directly to the attrition of referees in the game.

A second main related implication is that evidence is provided showing that abuse reduces the well-being of referees both directly and indirectly through their intention to quit. It follows that a failure to cut out the abuse of referees can be understood as a duty of care failing by association football authorities not protecting referees in the context noted above in which “Mental health promotion involves actions that improve psychological well-being” (WHO, 2021 para #7). As Webb et al. (2021) argue, the impact of abuse on referees can and should be understood as a public health issue. As such, and particularly because association football governing bodies receive public funding for their activities, they should prioritize change and the protection of referees.

A final implication flows from consideration of the contexts in which abuse typically occurs. The data discussed above identifies that this tends to be related to key strategic decisions such as disallowing goals, offside decisions, and disciplinary sanctions. Focussing training and support on making these decisions would help referees. Having association football coaching courses also focussing on the role and complexity of referee decision making would help to contextualize referee decisions for coaches and players, which has been emphasized by Phillips and Fairley (2014). Likewise, broader advocacy of referees in the key decision-making contexts across the association football community is needed. Media pundits pouring over slow motion replayed decisions in which errors might have been made but were extremely difficult decisions to make in real time because of the physiological and psychological pressures are not helpful if framed in the context of blame. Highlighting the challenges faced by referees when evaluating complex decisions in a timely manner which can be made with inevitable unintentional error should be presented as part of the game and not referee failures to which scapegoating for undesirable results can be attached. The lack of deliberate malfeasance is a narrative that needs to develop across association football stakeholders.

Limitations

There are limitations with the current research. As is generally the case with research seeking causal insight, it also follows that longitudinal research would better isolate the relationships between abuse, intention to quit and well-being. Nonetheless, the current research also raises some important issues that require further investigation. With larger scale data, it would be instructive to identify which specific forms of abuse and the context in which they occur affect referee intentions and their well-being most. More finely tuned understanding of abuse hot spots could help with both referee support and training and act as a focus for changing public perception through discussion of them. What would also be informative in this respect is to link the incidence and type of abuses to different dimensions of well-being that are captured in multi-dimensional measures, as discussed earlier.

As identified earlier, it is also clear that larger-scale research on female referees is required as there are distinct features of female abuse (e.g. sexual harassment) that require exploring (Tingle et al., 2021; Webb, Dicks, et al., 2019). Currently, most of the research on female referees is small-scale and qualitative

(de Haan & Warner, 2020). Larger scale quantitative analysis would help to identify both its form and extent. Finally, the treatment effects analysis provides some glimpses into the counterfactual behaviors of referees and particularly that some referees appear not to contemplate quitting despite abuse reducing their well-being. The nature and extent of this resilience, and how and why referees make such trade-offs suggests a fertile line of enquiry from which lessons for referee mentoring and the development of resilience could be derived. The literature suggests that this resilience could be because of support from role models (Tingle et al., 2014; Wicker & Frick, 2016), governing associations (Ridinger, 2015), or camaraderie with colleagues (Phillips & Fairley, 2014). However, it is also recognized that greater understanding of how those individuals engaged in sport cope with adversity is needed, not only in terms of what resilience means but also how it is measured (Galli & Gonzalez, 2015). This would also help to establish the longer-term implications of the erosion of well-being on the motivation of referees as a key stakeholder in sport and how better to support them.

What does this article add?

The above research contributes both to the emerging quantitative analysis of the impact of abuse on referee intention to quit (Dawson et al., 2021; Giel & Breuer, 2020) and the emergent research on the well-being of officials (M. Kim et al., 2019, 2021). Uniquely, the study reveals that an adverse sporting experience increases the intention to quit of officials, but also reduces their well-being directly and indirectly through their effect on intention to quit. Moreover, the referees' well-being falls for those who experience abuse but do not consider quitting. This suggests that such referees pay a well-being cost for their resilience.

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Data availability statement

Data are available from the authors on request.

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