

Associations of abusive supervision among collegiate athletes from equity-deserving groups

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► Additional supplemental material is published online only. To view, please visit the journal online (<https://doi.org/10.1136/bjsports-2024-108282>).

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Accepted 6 January 2025



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To cite: Runquist III EB, Adenaiye OO, Sarzaeim M, *et al.* *Br J Sports Med* Epub ahead of print: [please include Day Month Year]. doi:10.1136/bjsports-2024-108282

ABSTRACT

Objective To examine differences in abusive/supportive coach supervision experienced by collegiate athletes across race/ethnicity, gender, sexual orientation and disability; determine the impact of coach characteristics on abusive supervision prevalence; and explore outcomes related to team culture, athlete autonomy, perceived coach leadership skills and perceived concern for athletes' well-being.

Methods Cross-sectional analysis of the 2021–2022 National Collegiate Athletic Association (NCAA) myPlaybook survey on 3317 athletes (aged ≥18 years). The survey captured self-reported demographics, sport type (team vs individual, lean vs non-lean) and multiple validated measures reflecting abusive/supportive coaching styles. Structural equation modelling identified associations while controlling for confounders.

Results Overall, 18.6% (n=618) of athletes reported some form of abusive supervision. After adjusting for covariates, participating in team sport (OR=1.10, 95% CI 1.03 to 1.17) and having a disability (OR=1.17, 95% CI 1.04 to 1.31) were associated with higher odds of reporting abusive supervision. No significant differences were found based on athlete race/ethnicity, gender identity or sexual orientation. Coaches demonstrating attentiveness to athletes' needs (OR=0.82, 95% CI 0.73 to 0.92) and respect for their input (OR=0.89, 95% CI 0.80 to 1.00) had lower odds of reported abusive supervision.

Conclusion Nearly one-fifth of this NCAA cohort experienced abusive coach supervision. Disability and team sport participation were significantly associated with increased reports, whereas race/ethnicity, gender identity or sexual orientation showed no significant differences. In disabled and team sport athletes, sustained verbal/non-verbal abuse had a negative impact on athletes' perception of team culture, autonomy, coaches' leadership skills and coaches' concern for their well-being. Coaching and leadership styles remain critical educational targets for providing safe sport environments for all athletes.

INTRODUCTION

Sport is widely recognised as a beneficial environment for promoting the personal development of adolescent and collegiate athletes.^{1–3} Participation in sport has been found to positively affect many facets of a person's development, including enhancing enjoyment, fostering self-esteem, promoting emotional regulation, facilitating collaboration with others and cultivating essential life skills, such as respect for others, perseverance, teamwork and leadership.^{2–4} The developmental advantages of

WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ Abusive supervision in sport is inherently derived from the power dynamic that is present between coaches and their athletes.

WHAT THIS STUDY ADDS

⇒ This study deepens the scientific exploration of the interplay between coaching and leadership style (supportive vs abusive), athletes' experiences of sport and related differences in equity-deserving athlete groups.

⇒ While disabled and team sport athletes had significantly higher odds of reporting abusive supervision, no significant differences were found based on athlete race/ethnicity, gender identity or sexual orientation.

⇒ Coaches demonstrating harsh reactions and a heightened focus on team success/outcomes were deemed more abusive.

⇒ Coaches demonstrating attentiveness to, and respect for, athletes' needs and input, who demonstrated accountability and who regularly communicated respectfully with their athletes, were deemed more supportive.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

⇒ Focusing on coaching and leadership as intervention points might help to achieve safe sport, particularly among collegiate athletes with disabilities and those participating in team sports.

participating in sport are widely acknowledged, but there has been recent concern about the risk of abusive supervision and interpersonal violence in the collegiate and adolescent sports environment, especially among equity-deserving athletes.^{3–12} Equity-deserving athletes include those with attributes that differ from societal-normative athlete groups and experience more violence in sport (ie, non-White, female, non-heterosexual and disabled).¹¹ Previously, this was almost exclusively written about in scientific literature not limited solely to sport; however, recent articles in the United States (US) media regarding coaches from the Harvard women's hockey, Northwestern University football and Iowa State University women's soccer programmes have shed light on the consequences of abusive supervision and the need for it to be addressed in collegiate athletics.^{13–15}

Previous research has shown that coaches, teammates, competitors and spectators/fans can all

contribute to initiating and continuing the cycle of interpersonal violence in sport.^{16–18} Maltreatment, psychological abuse and neglect are common terms in sports literature to describe violent behaviours inflicted by adults in positions of authority.¹⁹ Researchers have termed the aggregation of these hostile verbal and non-verbal behaviours by coaches as abusive supervision.^{6 8 10 19–21} Psychological abuse, characterised by chronic, deliberate actions such as humiliation and isolation, is notably common due to the inherent power imbalance between coach and athlete.^{6 18 19 21 22} This type of abuse can often be viewed by coaches as a motivator to enhance athlete performance,^{6 7 19 23 24} with prior research reporting approximately 44–75% of athlete participants being psychologically abused in the sporting environment.^{21 25 26}

Athletes view their coaches as role models, which makes their interactions a susceptible area for supervised abuse.²⁷ While transformational leadership can inspire players and impart valuable life lessons that positively impact athletes' play and contribute to their development,^{2 24 28 29} an unethical leader can severely negatively affect an athlete's mental health, quality of life and well-being in adulthood.^{9 19 21} Therefore, it is imperative that coaches and organisations are committed to supporting safe sport for their participants,^{30 31} and develop protective systems and initiatives, especially for equity-deserving athletes.^{6 11} Safe sport is a concept defined by the 2016 International Olympic Committee consensus statement as 'an athletic environment that is respectful, equitable and free from all forms of harassment and abuse'.¹⁸

It is imperative to explore the impact of abusive supervision on equity-deserving athletes as those groups are much more likely to encounter prejudice and bias in sport, as well as limited access. Furthermore, the majority of coaches and those in leadership roles remain those who identify as White, able-bodied, cisgender, heterosexual and male.³² Although efforts are being made to counteract the treatment discrimination these athletes experience, it persists in the sporting environment. Overall, it must continue to be characterised to drive change and end harmful discriminatory behaviours to safeguard all athletes.^{33 34}

Ultimately, due to the ever-growing presence of athletes' experiences with abusive coach supervision in the media, we collaborated with the US NCAA to: (1) analyse which groups, based on self-reported differences in race/ethnicity, gender, sexual orientation and disability status, experienced more abusive coach supervision, (2) determine the affect of coach characteristics on the prevalence of abusive supervision and (3) examine whether abusive supervision was associated with the coach–athlete concordance of gender or race/ethnicity. As a secondary goal, we further explored abusive supervision outcomes among equity-deserving groups related to its influence on athlete autonomy, team culture, perceived coach leadership skills and care for their athlete's well-being.

METHODS

Patient and public involvement

Abusive supervision among NCAA athletes was studied using a retrospective cross-sectional design. Data were obtained from the 2021–2022 myPlaybook survey developed in collaboration with the Sports Equity Lab at Stanford University and administered by the University of North Carolina Greensboro Institute to Promote Athlete Health & Wellness. The dataset included a sample of 4337 NCAA athletes from 123 universities across the USA. A large sample size was needed for internal validity and generalisability as the NCAA includes over 500 000 total athletes.

Participants completed the survey between July and December 2021 through the online Qualtrics platform. They were required to be a current member of an NCAA-sanctioned sport/athletic team, at least 18 years of age and give written informed consent to complete the survey. The institutional review board at the University of North Carolina Greensboro originally approved the study.¹²

Survey and outcome variables

The abusive supervision survey used in myPlaybook was the validated Tepper 2000 questionnaire.^{20 35} The 15-item scale was adapted to pose questions regarding whether athletes had experienced certain abusive coaching behaviours. Answers to each item ranged on a Likert scale from 1 to 5 with 1 representing, 'I cannot remember him/her ever using this behaviour with me' and 5 representing, 'He/She uses this behaviour very often with me'. The 15 questions, found in the online supplemental appendix, assessed abusive coaching behaviours, such as psychological abuse and neglect through prompts such as 'ridicules me' or 'lies to me'. Outcomes with the potential to be affected by abusive supervision were analysed using four additional questionnaires found in the myPlaybook survey from the Safeguarding Checklist.^{36 37} These surveys, also found in the online supplemental appendix, assessed athlete autonomy, team culture, perceived coach leadership skills and care for their athlete's well-being. Athlete autonomy was evaluated on a seven-point scale, with higher scores indicating greater respect for athlete autonomy by coaches. Team culture was evaluated on a five-point scale, with higher scores indicating greater ability to foster a positive team culture by coaches. Lastly, three-point scales were used to evaluate leadership skills and athlete well-being with higher scores indicating greater perceived coach leadership skills and care for athlete's well-being.

Statistical analyses

Our primary inferential analysis used structural equation modelling to evaluate the adjusted associations between demographic and sport characteristics (eg, race/ethnicity, gender identity, sexual orientation, disability status, team vs individual sport, lean vs non-lean sport) and reported abusive supervision. Structural equation modelling allowed for a multivariate analysis that controlled for multiple covariates simultaneously, providing a more comprehensive and robust examination of the relationships under study. This approach was selected to better account for potential confounding factors and to isolate the unique contribution of each predictor variable to the outcome of interest. First, descriptive analysis of abusive supervision was performed by observing differences between individual, coach and sport characteristics in comparison with Tepper Scale questions.²⁰ The individual and coach characteristics evaluated included demographic variables such as gender, race/ethnicity, sexual orientation, disability status, as well as coach–athlete concordance of gender and race/ethnicity. The sport characteristics included classifications between Divisions I/II/III, team versus individual sports and lean versus non-lean sports. A review of previous literature was used to determine lean versus non-lean sport classifications for the analysis.³⁸ For this study, lean sports included those with emphasis on aesthetics, weight classes and endurance, whereas non-lean sports included ball games, power and technically focused sports. Sports such as cross country, dance and diving comprised the lean sports group, while sports such as volleyball, football and soccer comprised the non-lean sports.

Mann-Whitney U tests were used to compare continuous variables between two groups, while Fisher's exact tests examined categorical variable differences between groups. The internal consistency of each construct was assessed using Cronbach's α . Specifically, we evaluated constructs such as abuse supervision, athlete well-being, athlete autonomy, team culture and leadership, found in the online supplemental appendix 2. For an initial examination of the relationships between pairs of constructs, Spearman correlation tests were conducted. We also calculated a composite score for each respondent by summing values across all items within each construct. To examine differences in athletes' reports of abuse supervision, we employed a generalised linear model with a β distribution (commonly referred to as β regression) using a logit link function. This model is particularly suited for outcomes that are bounded between 0 and 1. The dependent variable, the composite score for abuse supervision, was proportionally scaled within this range. We controlled for key demographic variables including age, gender and sport type. Unlike traditional linear regression, which assumes normally distributed residuals, β regression accommodates variance that is inherently dependent on the mean in bounded continuous data, thus ensuring that all model predictions remain within the appropriate limits. Model fit was assessed using McFadden's pseudo- R^2 , indicating satisfactory power. This approach robustly estimates the impact of the specified predictors while accounting for the bounded nature of the response variable.

We conducted a sensitivity analysis by dichotomising responses into 'any' versus 'no' abusive supervision. Using this binary cutoff factor, we used multivariable logistic regression to evaluate the probability of reporting abusive supervision, adjusting for covariates. This sensitivity analysis was exploratory, intended to confirm the robustness of the associations observed. However, the main conclusions of the study are drawn from the structural equation modelling, which provided a fully adjusted, multivariable perspective accounting for other variables. The range for proportions of missing data in the predictors as well as the proportion of participants with at least one missing predictor in the regression models used was between 5.6% and 8.1%. The structural equation model and generalised linear models with β distribution were conducted using lavaan and glmTMB libraries respectively. All statistical analyses were performed in R, with a two-sided p value of <0.05 indicating statistical significance.

Equity, diversity and inclusion statement

This study included a cohort of collegiate athletes of varying genders, races, ethnicities and disability statuses from the NCAA. Our author team consisted of two women and four men of different races/ethnicities (ie, White, Middle Eastern and African-American). Junior, mid-career and senior researchers from various sports medicine related disciplines and professions in North America carried out the project together (ie, physician, statistician, professor, postdoctoral student and medical student). Formal consensus was periodically obtained so that data could be synthesised, interpreted and presented in a balanced way. In addition, the influence of gender, sexual orientation, disability status and racial/ethnic identity on abusive supervision within collegiate sport is presented in the discussion.

RESULTS

Demographic factors and abusive supervision

The survey saw participation from 4029 respondents, with 3317 providing complete data on abuse supervision and 1926 (58.1%) offering complete data on abuse supervision and other survey

constructs, such as coach leadership style, athlete well-being and athlete autonomy. Most respondents (89.2%) were aged between 18 and 21 ($n=2959$), and male respondents constituted approximately 57% of the cohort ($n=1891$). The sample collectively included 0.6% transgender ($n=3$), non-binary ($n=9$) and athletes reporting 'other' ($n=7$) as their gender identity; however, these were excluded owing to the limited number of responses and lack of power in final analyses of the dataset; thus only a binary categorisation of male versus female athletes has been presented in this study. We acknowledge that sex (female/male) and gender (woman/man) are distinct, but data for this study was obtained from the 2021–2022 myPlaybook survey which uses the words female and male in the question posed to participants about their 'gender' identity; the results presented in this study maintain consistency with the language of the original survey instrument. Regarding sport participation, about 81% ($n=2689$) were involved in non-lean sports and about 75% ($n=2480$) participated in team sports. Participant distribution across NCAA divisions was as follows: division II with 48% ($n=1593$), division I with 25.5% ($n=845$) and division III with 26.5% ($n=879$). About 76% of participants shared the same gender as their coach (male–male pairs: 55.6% ($n=1844$), female–female pairs: 19.9% ($n=660$)). Descriptive characteristics of the study sample are summarised in table 1, with additional item-based analyses in table 2 and table 3.

Of the 3317 participants evaluated (table 1), 2699 reported no abuse supervision and 618 affirmed they had experienced it (18.6%). There was no significant age difference between those who reported abuse and those who did not ($p=0.713$). Gender identity analysis revealed that women were slightly more likely to report abuse, although this result was not statistically significant ($p=0.405$). Race/ethnicity data indicated about 65% of participants were White ($n=2162$), but there was no significant difference between the different racial groups in terms of reporting abuse ($p=0.413$). Sexual orientation among participants was predominantly heterosexual (94.2%, $n=3125$) and disability prevalence was 2.7% overall ($n=88$). Significant differences were noted in the type of sport played as 74.8% were team sports participants ($n=2480$), who reported more abusive supervision ($p<0.001$) than their peers who participated in individual sports ($n=837$). Furthermore, when comparing lean versus non-lean sports, 81.1% were non-lean sports participants ($n=2689$), with a higher number of abuse reports ($p<0.001$) in non-lean sport athletes (table 3).

Risk-adjusted association between abusive supervision and demographic factors

In the risk-adjusted structural equation model (table 4), the regression results revealed significant associations of slightly increased abusive supervision for team sport (OR=1.10, 95% CI 1.03 to 1.17) and self-identified athletes with disabilities (OR=1.17, 95% CI 1.04 to 1.31) in comparison with their individual sport and non-disabled peers. However, in that analysis, gender identity, race, sexual orientation, NCAA division, coach–athlete gender concordance, coach–athlete race concordance, lean versus non-lean sport and age were not associated with abusive supervision.

Secondary outcomes and abusive supervision

Coaches' engagement in behaviours indicative of concern for athlete well-being was associated with reduced reports of abuse supervision (table 5). Specifically, regular progress checks (OR=0.77, 95% CI 0.62 to 0.95), positive

Table 1 Overall demographic characteristics of participants, and unadjusted associations between demographic factors and self-reported experiences of abusive supervision

Any self-reported abuse supervision	No (n=2699)	Yes (n=618)	Overall (n=3317)	*P value
Age (years)				
18–21	2417 (89.6%)	542 (87.7%)	2959 (89.2%)	0.713
22–24	267 (9.9%)	73 (11.8%)	340 (10.3%)	
≥25	13 (0.5%)	3 (0.5%)	16 (0.5%)	
Missing	2 (0.1%)	0 (0%)	2 (0.1%)	
Gender identity				
Female	1145 (42.4%)	281 (45.5%)	1426 (43.0%)	0.405
Male	1554 (57.6%)	337 (54.5%)	1891 (57.0%)	
Race/ethnicity				
Non-White	954 (35.3%)	201 (32.5%)	1155 (34.8%)	0.413
White	1745 (64.7%)	417 (67.5%)	2162 (65.2%)	
Sexual orientation				
Heterosexual	2548 (94.4%)	577 (93.4%)	3125 (94.2%)	0.574
Non-heterosexual	151 (5.6%)	41 (6.6%)	192 (5.8%)	
Disability				
No	2635 (97.6%)	594 (96.1%)	3229 (97.3%)	0.114
Yes	64 (2.4%)	24 (3.9%)	88 (2.7%)	
NCAA division				
NCAA division I	675 (25.0%)	170 (27.5%)	845 (25.5%)	0.802
NCAA division II	1306 (48.4%)	287 (46.4%)	1593 (48.0%)	
NCAA division III	718 (26.6%)	161 (26.1%)	879 (26.5%)	
Coach–athlete race concordance				
Both player and coach POC	376 (13.9%)	74 (12.0%)	450 (13.6%)	0.904
Both player and coach White	1587 (58.8%)	379 (61.3%)	1966 (59.3%)	
POC coach, White player	158 (5.9%)	38 (6.1%)	196 (5.9%)	
White coach, POC player	578 (21.4%)	127 (20.6%)	705 (21.3%)	
Coach–athlete gender concordance				
Both player and coach female	533 (19.7%)	127 (20.6%)	660 (19.9%)	0.813
Both player and coach male	1489 (55.2%)	355 (57.4%)	1844 (55.6%)	
Female coach, male player	18 (0.7%)	2 (0.3%)	20 (0.6%)	
Male coach, female player	659 (24.4%)	134 (21.7%)	793 (23.9%)	
Team vs individual sport				
Individual	742 (27.5%)	95 (15.4%)	837 (25.2%)	<0.001
Team	1957 (72.5%)	523 (84.6%)	2480 (74.8%)	
Lean vs non-lean sport				
Lean	556 (20.6%)	72 (11.7%)	628 (18.9%)	<0.001
Non-lean	2143 (79.4%)	546 (88.3%)	2689 (81.1%)	

*Fisher's exact test.

NCAA, National Collegiate Athletic Association; POC, person of colour.

reinforcement during training (OR=0.63, 95% CI 0.48 to 0.82) and respectful communication (OR=0.57, 95% CI 0.43 to 0.77) were all associated with a reduced reporting of abuse supervision. Adjustments to training due to pain or injury (OR=0.76, 95% CI 0.58 to 1.00) and hands-on technique adjustments (OR=0.72, 95% CI 0.56 to 0.92) showed negative associations. In terms of athlete autonomy, autonomy-supportive coaching practices were not associated with abuse supervision reports except when coaches expressed confidence in athletes' abilities (OR=0.91, 95% CI 0.85 to 0.98).

Furthermore, coaches' attentiveness to athletes' needs and perspectives was associated with lower abuse supervision reports (OR=0.82, 95% CI 0.73 to 0.92). A deep interest in athlete opinions marginally correlated with decreased reports (OR=0.89, 95% CI 0.80 to 1.00). On the contrary, a strong devotion to team success (OR=1.47, 95% CI 1.28

to 1.69) and concern about the team's outcomes (OR=1.24, 95% CI 1.07 to 1.44) were associated with increased odds of abusive supervision reports. Coaches' acceptance of the repercussions of their decisions reduced the odds of abusive supervision reports (OR=0.87, 95% CI 0.77 to 0.98). Additionally, leadership behaviours had varied associations with abuse supervision. Harsh reactions from coaches were directly associated with increased reports of abuse supervision (OR=1.06, 95% CI 1.02 to 1.09). In contrast, behaviours such as checking in with the team about group dynamics and conflicts (OR=0.65, 95% CI 0.52 to 0.81), recognising individual contributions to the team (OR=0.65, 95% CI 0.51 to 0.84), acknowledging athletes' concerns about the team (OR=0.67, 95% CI 0.53 to 0.84) and soliciting team feedback (OR=0.64, 95% CI 0.5 to 0.82) were associated with reduced odds of abusive supervision reports (table 5).

Table 2 Association between Tepper Abusive Supervision Scale items and equity-deserving group demographic characteristics

Abuse Supervision Scale	Race/ethnicity			Gender		Sexual orientation			Disability status			
	White	Non-White	P value*	Male	Female	P value*	Heterosexual	Non-Heterosexual	P value*	No disability	Has Disability	P value*
Item 1	1.31	1.25	0.05	1.30	1.27	0.97	1.29	1.25	0.99	1.50	1.28	0.18
Mean (SD)	(0.70)	(0.66)		(0.71)	(0.66)		(0.69)	(0.60)		(0.99)	(0.68)	
Item 2	1.14	1.13	0.90	1.15	1.12	0.92	0.14	1.09	0.99	1.19	1.14	0.81
Mean (SD)	(0.53)	(0.52)		(0.56)	(0.47)		(0.53)	(0.37)		(0.69)	(0.52)	
Item 3	1.20	1.20	0.92	1.20	1.20	0.61	1.20	1.19	1	1.36	1.20	0.37
Mean (SD)	(0.64)	(0.65)		(0.65)	(0.63)		(0.64)	(0.61)		(0.93)	(0.63)	
Item 4	1.24	1.19	0.45	1.21	1.24	0.73	1.23	1.17	0.90	1.42	1.22	0.16
Mean (SD)	(0.66)	(0.61)		(0.64)	(0.65)		(0.65)	(0.54)		(1.00)	(0.63)	
Item 5	1.11	1.13	0.98	1.11	1.13	0.04	1.12	1.15	0.31	1.14	1.12	0.24
Mean (SD)	(0.48)	(0.50)		(0.49)	(0.48)		(0.49)	(0.43)		(0.43)	(0.49)	
Item 6	1.29	1.27	0.96	1.26	1.31	0.79	1.29	1.24	0.99	1.40	1.28	0.44
Mean (SD)	(0.73)	(0.69)		(0.68)	(0.76)		(0.72)	(0.60)		(0.90)	(0.71)	
Item 7	1.33	1.29	0.60	1.29	1.36	0.11	1.31	1.40	0.91	1.49	1.31	0.54
Mean (SD)	(0.80)	(0.78)		(0.75)	(0.84)		(0.78)	(0.90)		(1.02)	(0.78)	
Item 8	1.13	1.13	0.96	1.13	1.13	0.99	1.13	1.11	0.96	1.24	1.13	0.40
Mean (SD)	(0.52)	(0.52)		(0.51)	(0.52)		(0.52)	(0.42)		(0.79)	(0.51)	
Item 9	1.22	1.19	0.92	1.20	1.22	0.97	1.21	1.22	0.95	1.32	1.20	0.74
Mean (SD)	(0.66)	(0.63)		(0.65)	(0.67)		(0.66)	(0.63)		(0.88)	(0.65)	
Item 10	1.25	1.19	0.19	1.20	1.27	0.07	1.23	1.27	0.83	1.42	1.22	0.12
Mean (SD)	(0.70)	(0.62)		(0.62)	(0.74)		(0.67)	(0.69)		(1.03)	(0.66)	
Item 11	1.17	1.16	0.28	1.16	1.17	0.97	1.17	1.13	0.76	1.24	1.16	0.63
Mean (SD)	(0.59)	(0.58)		(0.59)	(0.56)		(0.60)	(0.39)		(0.80)	(0.58)	
Item 12	1.16	1.15	0.23	1.16	1.15	0.94	1.16	1.15	0.85	1.30	1.15	0.38
Mean (SD)	(0.55)	(0.55)		(0.56)	(0.53)		(0.55)	(0.43)		(0.81)	(0.54)	
Item 13	1.07	1.10	0.49	1.09	1.06	0.12	1.08	1.09	0.94	1.17	1.08	0.29
Mean (SD)	(0.39)	(0.47)		(0.46)	(0.36)		(0.42)	(0.49)		(0.76)	(0.41)	
Item 14	1.09	1.10	0.63	1.11	1.08	0.79	1.10	1.07	0.91	1.22	1.09	0.32
Mean (SD)	(0.44)	(0.48)		(0.50)	(0.40)		(0.46)	(0.34)		(0.73)	(0.45)	
Item 15	1.14	1.16	0.66	1.15	1.13	0.97	1.14	1.12	0.99	1.32	1.14	0.12
Mean (SD)	(0.54)	(0.60)		(0.59)	(0.52)		(0.56)	(0.48)		(0.92)	(0.55)	

The minimum and maximum reported scores for each item are 1 and 5 respectively. The median reported score for each item is 1.

Abusive Supervision Scale items 1–15 can be found in the online supplemental appendix.

*P value, Mann-Whitney U test.

DISCUSSION

Due to abusive supervision garnering increasing attention in research and the US media, we aimed to analyse its effects and influence among NCAA collegiate athletes, particularly those from equity-deserving groups. Our results demonstrated that out of 3317 collegiate athletes who completed the survey, 18.6% reported some form of abusive supervision from coaches (n=618). One main finding from our results was the presence of increased abusive supervision in team sport and athletes with disabilities, whereas athlete gender, race and sexual orientation were not significantly associated with scores from the Tepper Abusive Supervision Scale in this study. However, many equity-deserving athletes reported a significant lack of respect for their autonomy and well-being. Groups most affected included female, non-White and athletes with disabilities. Female athletes were also more likely to report that their coaches had poor leadership skills and fostered a negative team culture. Overall, these findings are concerning as we know from prior research the role abusive coaching plays in psychological, training, performance and academic outcomes in comparison with coaches who use a more athlete-centred and humanistic approach.^{5 39 40}

Disability status was shown to significantly influence the prevalence of abusive supervision on risk-adjusted analysis, as self-identified athletes with disabilities were 1.16 times more likely to report abusive supervision. These results align with

previous studies which have found that athletes with disabilities might have an increased likelihood of experiencing abuse than their non-disabled peers.^{11 18 22 26} Disability stigma, insufficient funding, lack of respect for autonomy and lack of knowledge about requirements for athletes with disabilities still impact and cause emotional/psychological harm in this athlete group.²² Further progress that targets those inequities might provide athletes with disabilities with a safer sporting environment and a more equitable playing field.⁴¹

Gender differences have long been known as a worldwide risk factor for abusive supervision, whereas sexual orientation discrimination is becoming more openly discussed for its persistence in the sporting world today. The organisational structure of sport has relied on social constructs of gender and its perceived ability to perform in certain sports. However, the categorical and binary structure of sport, as it stands, does not always consider the range of possible identities today.⁴² In addition to this and other structural drivers of inequity, the nuanced, everyday experiences and conditions faced by athletes are often under-acknowledged and invalidated. This under-acknowledgement has been identified as a persistent human rights violation that contributes to social exclusion and discrimination of equity-deserving groups in sport.¹¹ Many instances in which the human rights of equity-deserving athletes are violated in sport are derived from the creation of physically and psychologically hazardous sports

Table 3 Associations between Tepper Abusive Supervision Scale items and team characteristics

Abusive supervision scale	NCAA division I (n=845)		NCAA division II (n=1593)	NCAA division III (n=879)		Overall (n=3317)		P value*
Item 1								
Mean (SD)	1.31 (0.72)		1.28 (0.68)	1.27 (0.67)		1.29 (0.69)		0.935
Item 2								
Mean (SD)	1.14 (0.55)		1.14 (0.51)	1.14 (0.52)		1.14 (0.52)		0.940
Item 3								
Mean (SD)	1.17 (0.57)		1.22 (0.68)	1.21 (0.64)		1.20 (0.64)		0.559
Item 4								
Mean (SD)	1.24 (0.68)		1.22 (0.63)	1.22 (0.63)		1.22 (0.64)		0.970
Item 5								
Mean (SD)	1.12 (0.52)		1.11 (0.48)	1.13 (0.47)		1.12 (0.49)		0.603
Item 6								
Mean (SD)	1.33 (0.78)		1.25 (0.67)	1.30 (0.72)		1.28 (0.71)		0.055
Item 7								
Mean (SD)	1.36 (0.83)		1.30 (0.78)	1.30 (0.78)		1.32 (0.79)		0.183
Item 8								
Mean (SD)	1.14 (0.55)		1.12 (0.51)	1.13 (0.50)		1.13 (0.52)		0.967
Item 9								
Mean (SD)	1.21 (0.62)		1.19 (0.63)	1.24 (0.72)		1.21 (0.65)		0.715
Item 10								
Mean (SD)	1.24 (0.70)		1.23 (0.66)	1.23 (0.68)		1.23 (0.67)		0.998
Item 11								
Mean (SD)	1.17 (0.61)		1.17 (0.59)	1.17 (0.56)		1.17 (0.59)		0.780
Item 12								
Mean (SD)	1.16 (0.57)		1.15 (0.52)	1.17 (0.57)		1.15 (0.55)		0.664
Item 13								
Mean (SD)	1.07 (0.42)		1.08 (0.43)	1.08 (0.40)		1.08 (0.42)		0.359
Item 14								
Mean (SD)	1.08 (0.45)		1.10 (0.45)	1.11 (0.46)		1.10 (0.46)		0.208
Item 15								
Mean (SD)	1.13 (0.53)		1.14 (0.55)	1.16 (0.61)		1.14 (0.56)		0.621
Abusive Supervision Scale	Individual (n=837)	Team (n=2480)	Overall (n=3317)	P value*	Lean (n=628)	Non-lean (n=2689)	Overall (n=3317)	P value*
Item 1								
Mean (SD)	1.16 (0.52)	1.33 (0.73)	1.29 (0.69)	<0.001	1.17 (0.54)	1.31 (0.72)	1.29 (0.69)	<0.001
Item 2								
Mean (SD)	1.09 (0.42)	1.16 (0.55)	1.14 (0.52)	0.069	1.10 (0.44)	1.15 (0.54)	1.14 (0.52)	0.300
Item 3								
Mean (SD)	1.15 (0.54)	1.22 (0.67)	1.20 (0.64)	0.278	1.13 (0.51)	1.22 (0.67)	1.20 (0.64)	0.278
Item 4								
Mean (SD)	1.11 (0.46)	1.26 (0.69)	1.22 (0.64)	<0.001	1.12 (0.47)	1.25 (0.67)	1.22 (0.64)	<0.001
Item 5								
Mean (SD)	1.09 (0.42)	1.13 (0.51)	1.12 (0.49)	0.629	1.09 (0.44)	1.13 (0.50)	1.12 (0.49)	0.740
Item 6								
Mean (SD)	1.16 (0.57)	1.32 (0.75)	1.28 (0.71)	<0.001	1.16 (0.57)	1.31 (0.74)	1.28 (0.71)	<0.001
Item 7								
Mean (SD)	1.20 (0.64)	1.36 (0.83)	1.32 (0.79)	<0.001	1.21 (0.67)	1.34 (0.82)	1.32 (0.79)	0.003
Item 8								
Mean (SD)	1.09 (0.44)	1.14 (0.54)	1.13 (0.52)	0.123	1.09 (0.45)	1.14 (0.53)	1.13 (0.52)	0.292
Item 9								
Mean (SD)	1.15 (0.55)	1.23 (0.68)	1.21 (0.65)	0.085	1.14 (0.54)	1.22 (0.68)	1.21 (0.65)	0.204
Item 10								
Mean (SD)	1.13 (0.52)	1.26 (0.71)	1.23 (0.67)	<0.001	1.14 (0.55)	1.25 (0.70)	1.23 (0.67)	0.007
Item 11								
Mean (SD)	1.10 (0.48)	1.19 (0.62)	1.17 (0.59)	0.002	1.11 (0.47)	1.18 (0.61)	1.17 (0.59)	0.207
Item 12								
Mean (SD)	1.10 (0.45)	1.17 (0.57)	1.15 (0.55)	0.038	1.11 (0.46)	1.17 (0.56)	1.15 (0.55)	0.272

Continued

Table 3 Continued

Abusive supervision scale	NCAA division I (n=845)		NCAA division II (n=1593)		NCAA division III (n=879)		Overall (n=3317)	P value*
Item 13								
Mean (SD)	1.06 (0.34)	1.09 (0.44)	1.08 (0.42)	0.942	1.06 (0.33)	1.09 (0.44)	1.08 (0.42)	0.915
Item 14								
Mean (SD)	1.05 (0.38)	1.11 (0.49)	1.10 (0.46)	0.341	1.06 (0.35)	1.10 (0.48)	1.10 (0.46)	0.660
Item 15								
Mean (SD)	1.08 (0.42)	1.16 (0.60)	1.14 (0.56)	0.011	1.08 (0.44)	1.16 (0.58)	1.14 (0.56)	0.109

The minimum and maximum reported scores for each item are 1 and 5, respectively. The median reported score for each item is 1.

Abusive supervision scale items 1–15 can be found in the online supplemental appendix.

*P value, Mann-Whitney U test.

NCAA, National Collegiate Athletic Association.

conditions by administrators and coaches based on athletes' gender and sexual orientation. One prime example frequently discussed in the media recently is the widespread persecution and banning of transgender athletes.^{11 43–45}

Even though the findings of our study regarding gender and sexual orientation were not significantly associated with scores from the Tepper Abusive Supervision Scale specifically, several articles have shown the positive and negative effects of these constructs within the sports context. The US Center for SafeSport studied 3959 adult athletes across 50 sports and found that female and gender-non-conforming athletes were more likely to face psychological trauma and neglect than male athletes.¹¹ Furthermore, results for coaching behaviours and sportsmanship were shown to be moderated by gender, according to Bolter and Weiss.⁴⁶ They explain that gender influences how coaches use different strategies when teaching male and female athletes and

what constitutes sportsmanlike and unsportsmanlike behaviour, respectively. Lopez *et al* studied 145 US college athletes and showed that female athletes were more negatively affected by abusive leadership.⁶ On the other hand, similar to our findings (table 6), there were no significant differences in leaders' abusive supervision based on athletes' gender in the 2018 Stempel project,⁴⁷ but the results confirmed that the leaders' gender did play a role in athletes' feelings of abuse, with male leaders being more strongly linked to increased emotional exhaustion and somatic stress in athletes.

Findings from the limited scholarship on the topic of sexual orientation's influence on athlete experience in sport reveal that non-heterosexual athletes report more psychologically and sexually hazardous encounters than their heterosexual colleagues.^{26 48} Athletes who identified as gay were more sceptical of safe sport because they have been subjected to, or witnessed, instances of verbal microaggressions (such as stereotyping), the reinforcement of hypermasculine values and the widespread use of homophobic terms. These factors all contributed to a perception of an unsafe sport environment and had a destructive effect on athletes' well-being, mental health and sense of autonomy.^{11 49} Our findings agree with the conclusions drawn from previous studies as the prevalence of respect for athlete autonomy and well-being among coaches was lower in our cohort of non-heterosexual athletes.

Additionally, athletes from equity-deserving racial and ethnic groups might experience emotional/psychological harm from racial stereotypes, microaggressions and systemic racism that persists in the sporting world.^{7 11} We aimed to study that relationship in this study. Our results showed that athlete race and athlete-coach racial concordance did not significantly influence reported rates of abusive supervision in our study population (table 6). However, we believe future studies with larger sample sizes of athletes from equity-deserving racial/ethnic groups and bespoke athlete-centred survey tools are needed to further explore the intersectional relationships between race/ethnicity and other variables like gender and disability status, regarding abusive supervision within the NCAA to characterise any treatment discrimination in these athlete groups.

Finally, performance-driven sport culture has been called out as a structural driver of abuse in sport. The findings related to achievement--that coaches' devotion to the team and caring about winning correlated with higher abusive supervision reports (OR=1.47, CI=1.28–1.69, $p < 0.001$; OR=1.24, CI=1.07–1.44, $p < 0.004$ respectively), may support this insight within the NCAA.²³

Table 4 Structural equation model results showing the relationship between latent variable abusive supervision and demographic variables

	OR	Lower CI	Upper CI	*P value
Age				
≥25	0.985	0.947	1.025	0.063
Gender Identity				
Female	0.985	0.947	1.025	0.444
Race/ethnicity				
White	1.009	0.967	1.054	0.693
Sexual orientation				
Non-heterosexual	0.969	0.894	1.050	0.445
Disability				
Yes	1.165	1.040	1.306	0.008
NCAA division				
NCAA division III	1.007	0.982	1.033	0.603
Coach-athlete race concordance				
Male coach, female player	0.992	0.973	1.012	0.451
Coach-athlete gender concordance				
White coach, POC player	0.986	0.969	1.004	0.123
Team vs individual sport				
Team	1.098	1.029	1.171	0.004
Lean vs non-lean sport				
Non-lean	1.009	0.940	1.083	0.796

Confidence intervals (CI) reported at 95% confidence.

*P value, Mann-Whitney U test.

POC, person of colour.

Table 5 Odds of reporting abuse supervision in relation to secondary outcome variables (athlete well-being, athlete autonomy, team culture and coach leadership)

Athlete well-being		OR	Lower CI	Upper CI	P value
In the last week, my coach would have or did...?	Check in with me about how I felt I was progressing	0.77	0.62	0.95	0.014
	Say something when/if I do something good or better during training/exercises	0.63	0.48	0.82	0.001
	Speak to me in a tone that conveyed respect	0.57	0.43	0.77	<0.001
	Acknowledge and make necessary adjustments for pain/injuries I have/had	0.76	0.58	1.00	0.051
	Conduct any hands-on adjustments to my form or technique in a way that is useful and appropriate	0.72	0.56	0.92	0.01
Athlete autonomy		OR	Lower CI	Upper CI	P value
My coach...	Provides me with choices and options	1.00	0.93	1.08	0.971
	Makes sure I feel understood	0.95	0.86	1.04	0.227
	Conveys confidence in my ability to do well	0.91	0.85	0.98	0.011
	Encourages me to ask questions	0.96	0.90	1.03	0.281
	Listens to how I would like to do things	0.95	0.89	1.02	0.15
	Tries to understand how I see things before making suggestions	0.95	0.88	1.02	0.131
Team culture		OR	Lower CI	Upper CI	P value
My coach...	Seeks to understand the needs and views of student-athletes	0.82	0.73	0.92	0.001
	Is deeply interested in listening to student-athletes' opinions	0.89	0.80	1.00	0.047
	Is devoted to the team	1.47	1.28	1.69	<0.001
	Cares about me whether we win or lose	0.89	0.78	1.01	0.073
	Cares about other coaches whether they win or lose	1.04	0.96	1.12	0.329
	Cares about our team whether we win or lose	1.24	1.07	1.44	0.004
	Accepts responsibility for the impact of their decisions	0.87	0.77	0.98	0.025
	Is committed to helping student-athletes improve	0.90	0.76	0.98	0.193
	Prioritises relationships with student-athletes	0.96	0.86	1.07	0.482
	Responds thoughtfully to student-athletes	0.87	0.77	0.98	0.017
	Reacts harshly to student-athletes	1.06	1.02	1.09	0.001
	Inspires student-athletes toward a greater purpose than winning	0.95	0.85	1.06	0.369
Coach leadership		OR	Lower CI	Upper CI	P value
In the last week, my coach would have or did...?	Check in with me/team about triumphs/criticisms/retaliation within the team	0.65	0.52	0.81	<0.001
	Ask what he/she/they can do to help the team succeed	0.93	0.74	1.17	0.546
	Say something when/if I do something good for the team and/or team members	0.65	0.51	0.84	0.001
	Thank me when/if I say there's a problem/issue with the team	0.67	0.53	0.84	0.001
	Welcome input/feedback from the team about the coach/staff	0.64	0.50	0.82	<0.001

OR, Odds of reporting abusive supervision estimated using generalised linear model with β distribution. Confidence intervals (CI) reported at 95% confidence.

Implications for NCAA collegiate settings

Overall, athletes rely heavily on their coaches for professional and personal growth. The presence of abusive leadership behaviours can hinder this development, as well as negatively affect an athlete's performance, experience of sport and mental health. As seen in this study, abuse from coaches is influenced by a higher focus on winning over well-being and can affect how athletes perceive team culture, coach leadership skills and how much respect their coaches have for their personal well-being and autonomy.

Promoting positive coaching strategies that prioritise athlete well-being, motivation and teamwork is essential to protecting collegiate athletes and facilitating their development. Therefore, NCAA member institutions should consider a nationwide policy that mandates the implementation of a standardised educational programme and training created by the NCAA e-learning team for coaches to recognise and address abusive supervision behaviours while recognising and amplifying supportive supervision behaviours. The organisation could also develop proper learning systems that track abusive and supportive coaching

supervision scores each season and give athletes a safe space to report coaches' behaviour. These systems could include access and referrals to appropriate mental health services such as counsellors on campus or sports psychology/psychiatry providers off campus if deemed necessary. Overall, the clinical implications of abusive versus nurturing athlete supervision are broad and beyond the scope of this manuscript. However, clinicians should be aware that signs of unhealthy sport relationships might be subtle and span behavioural, physical, psychological and performance (academic or athletic) domains. It is important to make appropriate referrals as indicated by established guidelines.⁵⁰

Ultimately, these systems would help to recognise abusive coaches and hopefully prevent future abuse from identified perpetrators going forward. Such systems would also help encourage supportive coaches and characterise nurturing coaching behaviours. Notably, proper consequences must be implemented to enforce a no-tolerance policy for harmful abusive supervision within the NCAA that ensures the protection of athletes and prevents any potential negative outcomes associated with abusive supervision.¹² These systems would also need

Table 6 Association between Tepper Abusive Supervision Scale items and coach characteristics

Abusive supervision scale	Both player and coach POC (n=450)	Both player and coach White (n=1966)	POC coach, White player (n=196)	White coach, POC player (n=705)	Overall (n=3317)	P value*
Item 1						
Mean (SD)	1.25 (0.70)	1.31 (0.70)	1.31 (0.71)	1.25 (0.63)	1.29 (0.69)	0.069
Item 2						
Mean (SD)	1.14 (0.56)	1.14 (0.52)	1.13 (0.54)	1.13 (0.49)	1.14 (0.52)	0.924
Item 3						
Mean (SD)	1.20 (0.65)	1.20 (0.64)	1.17 (0.60)	1.20 (0.65)	1.20 (0.64)	0.994
Item 4						
Mean (SD)	1.22 (0.67)	1.24 (0.65)	1.26 (0.73)	1.18 (0.57)	1.22 (0.64)	0.317
Item 5						
Mean (SD)	1.13 (0.54)	1.12 (0.48)	1.08 (0.43)	1.12 (0.48)	1.12 (0.49)	0.917
Item 6						
Mean (SD)	1.28 (0.75)	1.29 (0.73)	1.28 (0.71)	1.26 (0.66)	1.28 (0.71)	0.946
Item 7						
Mean (SD)	1.32 (0.84)	1.33 (0.79)	1.38 (0.88)	1.28 (0.74)	1.32 (0.79)	0.424
Item 8						
Mean (SD)	1.12 (0.52)	1.13 (0.51)	1.15 (0.58)	1.13 (0.50)	1.13 (0.52)	0.935
Item 9						
Mean (SD)	1.22 (0.71)	1.21 (0.66)	1.22 (0.73)	1.18 (0.58)	1.21 (0.65)	0.823
Item 10						
Mean (SD)	1.20 (0.63)	1.25 (0.69)	1.27 (0.82)	1.19 (0.61)	1.23 (0.67)	0.148
Item 11						
Mean (SD)	1.17 (0.61)	1.17 (0.59)	1.15 (0.61)	1.16 (0.56)	1.17 (0.59)	0.543
Item 12						
Mean (SD)	1.17 (0.62)	1.16 (0.54)	1.18 (0.62)	1.13 (0.49)	1.15 (0.55)	0.319
Item 13						
Mean (SD)	1.11 (0.52)	1.07 (0.38)	1.09 (0.48)	1.09 (0.43)	1.08 (0.42)	0.499
Item 14						
Mean (SD)	1.14 (0.58)	1.09 (0.43)	1.12 (0.57)	1.08 (0.41)	1.10 (0.46)	0.492
Item 15						
Mean (SD)	1.17 (0.65)	1.13 (0.53)	1.14 (0.63)	1.15 (0.56)	1.14 (0.56)	0.104
Abusive Supervision Scale	Both player and coach female (n=660)	Both player and coach male (n=1844)	Female coach, male player (n=20)	Male coach, female player (n=793)	Overall (n=3317)	P value*
Item 1						
Mean (SD)	1.28 (0.65)	1.30 (0.73)	1.20 (0.52)	1.25 (0.62)	1.29 (0.69)	0.761
Item 2						
Mean (SD)	1.13 (0.48)	1.15 (0.56)	1.10 (0.45)	1.11 (0.46)	1.14 (0.52)	0.761
Item 3						
Mean (SD)	1.19 (0.58)	1.22 (0.69)	1.10 (0.45)	1.17 (0.58)	1.20 (0.64)	0.709
Item 4						
Mean (SD)	1.22 (0.63)	1.24 (0.68)	1.15 (0.49)	1.19 (0.57)	1.22 (0.64)	0.866
Item 5						
Mean (SD)	1.14 (0.50)	1.12 (0.50)	1.15 (0.49)	1.09 (0.42)	1.12 (0.49)	0.565
Item 6						
Mean (SD)	1.30 (0.73)	1.30 (0.74)	1.15 (0.49)	1.24 (0.65)	1.28 (0.71)	0.673
Item 7						
Mean (SD)	1.33 (0.76)	1.33 (0.82)	1.15 (0.49)	1.29 (0.75)	1.32 (0.79)	0.885
Item 8						
Mean (SD)	1.11 (0.45)	1.14 (0.55)	1.10 (0.45)	1.12 (0.48)	1.13 (0.52)	0.493
Item 9						
Mean (SD)	1.20 (0.65)	1.22 (0.67)	1.20 (0.52)	1.19 (0.63)	1.21 (0.65)	0.973
Item 10						
Mean (SD)	1.24 (0.67)	1.24 (0.71)	1.15 (0.49)	1.20 (0.60)	1.23 (0.67)	0.963
Item 11						
Mean (SD)	1.16 (0.55)	1.18 (0.61)	1.15 (0.49)	1.14 (0.55)	1.17 (0.59)	0.927
Item 12						
Mean (SD)	1.15 (0.54)	1.17 (0.59)	1.15 (0.49)	1.11 (0.43)	1.15 (0.55)	0.714
Item 13						
Mean (SD)	1.06 (0.32)	1.10 (0.47)	1.10 (0.45)	1.06 (0.36)	1.08 (0.42)	0.177
Item 14						
Mean (SD)	1.08 (0.39)	1.12 (0.52)	1.10 (0.45)	1.06 (0.34)	1.10 (0.46)	0.507
Item 15						
Mean (SD)	1.15 (0.60)	1.15 (0.58)	1.10 (0.45)	1.12 (0.48)	1.14 (0.56)	0.945

Continued

Table 6 Continued

Abusive supervision scale	Both player and coach POC (n=450)	Both player and coach White (n=1966)	POC coach, White player (n=196)	White coach, POC player (n=705)	Overall (n=3317)	P value*
The minimum and maximum reported scores for each item are 1 and 5, respectively. The median reported score for each item is 1.						
Abusive Supervision Scale items 1–15 can be found in the online supplemental appendix						
*P value, Mann-Whitney U test.						
POC, person of colour.						

to be monitored by a neutral third party with coaches blinded to athlete participation to prevent underuse from fear of retaliatory reprimand.

Limitations and future research

It is important to acknowledge the limitations of our study. Given our study's retrospective cross-sectional design, we cannot establish temporal precedence between the characteristics of the athletes, coaches and sports and reports of abusive supervision. For instance, athletes who perceive their environment as more abusive might report higher levels of stress or dissatisfaction, which could, in turn, affect their perceptions of team culture and leadership rather than the reverse. This limitation highlights a disadvantage of a self-reported study design and the need for longitudinal studies that can track changes over time to establish the directionality of these relationships better. Our study might also be influenced by incidence-prevalence bias, particularly in how we have operationalised abusive supervision. By focusing on athletes currently engaged in sports, our sample might exclude those who have discontinued their sports careers owing to severe abuse, thus potentially underestimating the true prevalence and effects of abusive supervision. Furthermore, the study's cross-sectional nature limits our ability to differentiate between the short-term and long-term effects of abusive supervision on athletes. Also, only 58% of participants had complete datasets which could negatively influence the internal validity of the study and conclusions drawn from the results.

Another potential limitation is unmeasured confounding. While we controlled for a variety of demographic variables and sport characteristics, there might be other unmeasured factors that influence both the likelihood of experiencing abusive supervision and the outcomes measured. For example, personal characteristics such as resilience or previous experiences of abuse outside the sporting context could influence both exposure and reporting of abusive supervision. These unmeasured variables could confound the observed relationships, suggesting that the associations might not be causal. Future research should consider longitudinal designs that can more definitively establish causal relationships and account for changes in supervision and athlete responses over time. Additionally, incorporating qualitative methods could provide deeper insights into the context and dynamics of abusive supervision, helping to identify and control for potential confounders that are difficult to measure quantitatively.

The age groupings in the survey, while enabling direct comparisons with prior studies introduce some limitations such as loss of information, statistical power, potentially obscuring precise age effects on abusive supervision experiences. Future research could benefit from treating age as a continuous variable and employing more sophisticated statistical methods to reach a more detailed understanding of the influences of age on perceptions of abusive supervision. This study also focused on a specific population of collegiate athletes in the USA and results might not be generalisable to other age groups, sports organisations, or athletes worldwide, but could be comparable to other North American collegiate athlete groups such as the

National Association of Intercollegiate Athletics (NAIA) and the National Junior College Athletic Association (NJCAA). Future research in the abusive supervision field should examine these other athlete populations to expand knowledge within the field and continue to work toward the goal of providing safe sport to athletes globally.

In this study, we investigated questions raised by previous abusive supervision research studies within NCAA athletes, such as the effects of gender and NCAA division. Nevertheless, more studies investigating equity-deserving groups are needed to better understand the influence of these constructs on the coach-athlete relationship dynamic, especially in the para-athlete community, which remains understudied. Future studies along with more iterations of this survey could also provide enough data to allow for adequately powered analysis between all categories of an equity-deserving group rather than the binary classification model used in this study. In particular, future iterations of the myPlaybook survey could also include more accurate and comprehensive gender identity options for better detection of differential experiences across sex/gender lines which could have been limited in this study.

CONCLUSION

A total of 18.6% of surveyed athletes reported abusive supervision from coaches, and athletes with a disability or participating in a team sport had significantly higher odds. Acts of sustained verbal and non-verbal abuse negatively affected athletes' perception of their team culture and autonomy, as well as their coach's leadership skills and concern for their well-being. Ultimately, dealing with this problem is crucial for safeguarding NCAA athletes, particularly those from equity-deserving groups. Further solutions-focused research is necessary to advance the goal of fostering a safe sporting environment for collegiate athletes to thrive both on and off the field.

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Acknowledgements The authors would like to acknowledge Hanjia Li for her efforts in coordinating this project. They would also like to acknowledge the members of the Sports Equity Lab at Stanford University for their invaluable insights throughout the development and refinement of this study, as well as their unwavering support in our mission to eliminate inequities in sport.

Contributors YAT-W and EBR made substantial contributions to the design and conception of the work. JM, DW, and YAT-W partook in acquiring the data. OOA and EBR analysed the data. All authors contributed towards interpretation of data for the study. EBR, OOA and MS drafted the manuscript. All authors revised the manuscript at regular intervals for intellectual content, and provided final approval of the version to be published. All authors agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. YAT-W is the guarantor.

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests The authors declare that we have no conflicts of interest to report. YAT-W is a member of the BJSM editorial board.

Patient and public involvement Patients and/or the public were involved in the design, or conduct, or reporting, or dissemination plans of this research. Refer to the Methods section for further details.

Patient consent for publication Not applicable.

Ethics approval This study involves human participants and was approved by University of North Carolina Greensboro Institutional Review Board. Participants gave informed consent to participate in the study before taking part.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement All data relevant to the study are included in the article or uploaded as supplementary information.

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