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Gender, power orientation, and moral disengagement among elite volleyball athletes in Taiwan: A near-census multilevel analysis of individual and coaching predictors

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Abstract

Interpersonal harm in sport—aggression, bullying, harassment, and abuse—is gendered in its patterns and consequences, and moral disengagement is the social-cognitive process that rationalises it. Whether the well-documented gender difference in athletes' moral disengagement reflects sex category or the endorsement of power-oriented masculine traits remains unresolved, especially in non-Western settings. We asked whether power orientation carries the gender difference, and whether coach gender is associated with moral disengagement once team clustering is modelled. In a cross-sectional survey we recruited 215 elite volleyball athletes (129 men, 86 women) from 16 single-sex teams in Taiwan's enterprise and collegiate leagues, achieving near-census coverage (> 90%). Gender role orientation and moral disengagement were self-reported. Because athletes were nested within teams, primary analyses used multilevel models with a team random intercept, reporting Cohen's *d* and standardised fixed effects with 95% confidence intervals. Men endorsed masculine traits more strongly than women (*d* = 0.93), with no gender difference in feminine traits. Men reported higher total moral disengagement (*d* = 0.61) and higher scores on seven of eight mechanisms; the exception, diffusion of responsibility, was the most endorsed and gender-neutral. Power orientation (*b* = 0.23) and coach gender (men coaches higher; *b* = 0.60) predicted moral disengagement, whereas athlete gender did not once power orientation was included. Because teams were single-sex, the gender–power pathway was a between-team process, consistent in size but underpowered with 16 teams. The findings locate a modifiable, gendered cognitive target for harm prevention.

Introduction

Gender organises the moral life of sport. Interpersonal harm—aggression, bullying, harassment, and abuse—follows gendered patterns in who tends to perpetrate it, who is most often targeted, and how it is excused (Brackenridge, 2001; Mountjoy et al., 2016; Parent & Fortier, 2018). Moral disengagement is the social-cognitive process through which people deactivate self-sanctions and act harmfully without self-censure (Bandura, 1991, 2016), and men athletes consistently report higher moral disengagement than women (Kavussanu et al., 2002). A gender analysis asks what that difference is made of: whether it tracks sex category, or the socialised endorsement of agentic, status-oriented masculine traits that competitive sport cultures reward. We pursue that question in a non-Western elite population and extend it to the gendered structure of coaching, because identifying who is prone to moral disengagement, and which environments cultivate it, is a precondition for prevention that targets modifiable cognition in place of a demographic category.

Moral disengagement operates through eight mechanisms: moral justification, euphemistic labelling, advantageous comparison, displacement and diffusion of responsibility, distortion of consequences, dehumanisation, and attribution of blame (Bandura, 1999, 2002; Boardley & Kavussanu, 2011). In sport, moral disengagement is reliably associated with antisocial behaviour; a recent meta-analysis reported a large positive association with antisocial conduct and a smaller negative association with prosocial conduct (Zhu et al., 2025). These mechanisms are also implicated in the cognitive processes through

which perpetrators rationalise harassment and abuse (Bandura, 2016; Parent & Fortier, 2018), which ties moral disengagement directly to the prevention of gendered harm in sport.

Gender role socialisation is a candidate determinant of who morally disengages. Gender role orientation refers to the endorsement of traits culturally coded as masculine or feminine (Bem, 1974, 1981). The higher moral disengagement typically reported by men athletes is often attributed to masculine sport cultures that normalise aggression and rule violation as instrumental to success, a moral atmosphere shaped in part by conformity to masculine norms (Steinfeldt et al., 2012). Attributing this difference to sex category alone, however, obscures the mechanism. A more precise, gender-theoretic account locates the pathway in specific agentic, status-oriented traits. Power orientation in particular has been linked to reduced perspective-taking and heightened self-interested behaviour (Côté et al., 2011), and may dispose athletes to rationalise harmful conduct as necessary for competitive advantage. Recent evidence from a Chinese sample is consistent with this trait account: masculine traits and social dominance orientation predicted moral disengagement and aggression more strongly than gender category itself (Gan et al., 2024). Where the gender difference in moral disengagement is carried by power- and achievement-oriented traits, prevention efforts can target the modifiable cognition in place of a demographic category.

Environments matter alongside individuals. Coaches are primary socialising agents who transmit norms and shape the moral climate of teams (Kavussanu et al., 2009). The gender composition of coaching is itself a structural feature of the gender order of sport: women remain markedly underrepresented in elite coaching (LaVoi et al., 2019; Norman et al., 2018), and the moral climates that men- and women-led teams create may differ. Coaching structures thereby function as a setting through which exposure to harm-conducive norms is distributed across an athlete population. Because athletes are nested within teams, contextual effects must be estimated with models that account for the non-independence of athletes who share a coach and a team.

Cultural context further shapes how moral disengagement is expressed. Taiwan is a collectivist society in which harmony and shared accountability are emphasised (Triandis & Gelfand, 1998), and meta-analytic evidence suggests that the moral disengagement–antisocial behaviour association is weaker in collectivist than in individualist settings (Zhu et al., 2025). Collectivist values may channel moral disengagement toward mechanisms that distribute culpability across the group. Most evidence on moral disengagement in sport, however, derives from Western convenience samples, leaving its gendered antecedents underexamined in East Asian elite sport.

The present study addresses these gaps with a near-census of elite volleyball athletes in Taiwan—more than 90% of athletes at this competitive level—analysed with multilevel models that account for team clustering. This design supports a clustering-aware, gender-focused account, rare in this literature, of who morally disengages and in which coaching contexts within East Asian elite sport, while remaining explicit about what near-census coverage of a small number of teams can and cannot establish. We asked: (1) How do gender role orientation and moral disengagement differ by athlete gender? (2) Does

the gender difference in moral disengagement operate through power-oriented traits more than through sex category? (3) Is coach gender associated with athlete moral disengagement after accounting for team clustering? We hypothesised that men would endorse masculine traits and moral disengagement more strongly (H1), that power orientation would predict moral disengagement and account for the gender difference (H2), and that athletes coached by men would report higher moral disengagement (H3).

Method

Participants and sampling

Participants were 215 elite volleyball athletes (129 men, 60.0%; 86 women, 40.0%) drawn from 16 teams competing in Taiwan's enterprise league and top collegiate system, the highest tiers of domestic volleyball. The survey achieved near-census coverage, capturing more than 90% of all athletes active at this competitive level during the data-collection window, which substantially limits the sampling bias characteristic of the convenience samples typical of this literature. The sample was experienced and accomplished: 58.6% (*n* = 126) had played for nine or more years, 42.3% (*n* = 91) had been selected for a national team, and 55.8% (*n* = 120) were regular starters. Regarding coaching context, 165 athletes (76.7%) trained under men coaches and 50 (23.3%) under women coaches. Because athletes were nested within teams, all inferential models treated team as a clustering unit.

Measures

Gender Role Scale. Gender role orientation was assessed with 16 items rated on a 6-point scale (1 = *strongly disagree* to 6 = *strongly agree*). The instrument is a Chinese-language adaptation of the Positive–Negative Sex-Role Inventory (PN-SRI; Berger & Krahé, 2013), which distinguishes positive and negative facets of both masculinity and femininity. The Chinese version was developed through professional translation, expert content validation, item analysis, and exploratory factor analysis (Chang, 2025); full provenance, the 16 Chinese items with English translations, and the development procedure are given in Supplementary Material 1. In the present study the items were grouped into a masculine subscale (8 items: analytical, rational, objective, logical, practical [positive masculinity] plus arrogant, ostentatious, power-hungry [negative masculinity]), a feminine subscale (5 items: empathic, passionate, emotional, tender, loving [positive femininity]), and a negative subscale (3 items: anxious, disoriented, self-doubting [negative femininity]). Consistent with the PN-SRI's positive/negative-masculinity distinction, our exploratory factor analysis recovered this split within the masculine items, with the negative-masculinity (status/dominance) items—including power-hungry—forming a separate cluster (see Results). Internal consistency in this sample was acceptable to good for the masculine (α = .84, ω = .89), feminine (α = .79, ω = .86), and negative (α = .68, ω = .82) subscales.

Sport Moral Disengagement Scale. Moral disengagement was assessed with the 32-item Moral Disengagement in Sport Scale (MDSS; Boardley & Kavussanu, 2007), translated into Chinese and contextualised for volleyball, and rated on the same 6-point scale. The instrument indexes Bandura's eight mechanisms (four items each); the full Chinese items with English translations and the item-to-mechanism mapping are given in Supplementary Material 1. Reliability was high (α = .99, ω = .99). Because such a high coefficient indicates redundancy more than multidimensional precision, we examined the scale's structure: the items were strongly unidimensional, with the first component accounting for 70.2% of the variance and a mean inter-item correlation of .68. We therefore used the total score as the primary index of moral disengagement and treated the eight mechanism scores as exploratory, noting that they are highly intercorrelated and not cleanly separable in this sample.

Demographic and contextual variables. Athletes reported gender, playing years, position, starter status, national-team history, coach gender, and perceived coach leadership style (authoritarian, democratic, holistic, or laissez-faire). Athlete gender and coach gender were each recorded with a single self-report item with the response options "man" and "woman"; no participant selected or wrote in another category, so gender is treated here as a binary demographic variable, distinct from the continuous gender-role-orientation construct. We did not measure coach age, tenure, or professional background, which limits adjustment for coach-level confounders (see Limitations).

Procedure

Surveys were administered in Mandarin Chinese in group settings following practice or team meetings. Participation was voluntary. The study was approved by the Human Research Ethics Committee of National Cheng Kung University (approval no. NCKU HREC-E-115-0100-2). All research was performed in accordance with the Declaration of Helsinki and applicable institutional guidelines and regulations. Informed consent was obtained from all participants before data collection.

Data analysis

The study used a cross-sectional survey design and is reported in accordance with the STROBE guidelines for cross-sectional studies; the completed STROBE checklist is provided as Supplementary Material 2. All 215 participants had complete data on the analysed variables, so no imputation was required. The study was not pre-registered. Tests of the three a priori hypotheses (H1–H3) are confirmatory; the mechanism-level comparisons and the leadership-style analysis are exploratory and are labelled as such throughout.

Before hypothesis testing we examined the structural validity of both scales. For the moral disengagement scale we fitted a single-factor confirmatory factor analysis (CFA) and report common fit indices (CFI, TLI, RMSEA) alongside the proportion of variance explained by the first principal component. For the Gender Role Scale we ran an exploratory factor analysis (principal-axis extraction,

oblimin rotation; Kaiser–Meyer–Olkin and Bartlett tests reported) to examine whether the masculine, feminine, and negative item sets behaved as intended.

Gender comparisons used independent-samples *t*-tests with Cohen's *d*. Because moral disengagement was measured on athletes nested within 16 teams, primary analyses used multilevel (mixed-effects) models, estimated by restricted maximum likelihood, with a random intercept for team; we report the intraclass correlation (ICC) and fixed effects with 95% confidence intervals, and standardised continuous predictors. Because there are only 16 level-2 units, these fixed-effect confidence intervals are asymptotic and should be read alongside the small-cluster caveat (see Limitations). Because volleyball teams are single-sex, athlete gender had no within-team variance and is a team-level (level-2) variable; group-mean centering confirmed that no within-team gender effect was estimable. The gender→power orientation→moral disengagement mediation is therefore a between-team process, and we estimated it at the team level by aggregating to the 16 teams, with a Monte Carlo 95% confidence interval for the indirect effect (Preacher et al., 2010). For transparency we also report the individual-level bootstrap estimate, while treating the team-level estimate as the appropriate one because the gender contrast exists only between teams. Given only 16 level-2 units, we additionally estimated the statistical power to detect the observed coach-gender effect using a parametric simulation: holding the observed design, fixed effects, team-level variance, and residual variance fixed, we generated 600 datasets and recorded the proportion in which the coach-gender coefficient was significant at $\alpha = .05$. An exploratory comparison of coach leadership style (Welch's ANOVA with Games–Howell post-hoc tests, bootstrap confidence intervals, and covariate-adjusted models) is reported in Supplementary Material 3, because the measure is a single item confounded with coach gender and does not survive multilevel estimation. Analyses were conducted in Python with pandas (McKinney, 2010), statsmodels (Seabold & Perktold, 2010), pingouin (Vallat, 2018), and semopy (Igolkina & Meshcheryakov, 2020).

Results

Structural validity of the measures

For the moral disengagement scale, a single-factor model showed a strong but imperfect fit: the first principal component accounted for 70.2% of the item variance, and standardised first-component loadings were uniformly high (median = .86; 30 of 32 items ≥ .60). A strict single-factor CFA fitted the 32 items only moderately, $\chi^2(464) = 2182.8$, CFI = .82, TLI = .81, RMSEA = .13. This combination—a dominant general factor with a near-ceiling α (.99) alongside mediocre strict-unidimensional fit—indicates substantial item redundancy and local dependence more than eight separable mechanisms. We therefore use the total score as the primary index and treat the eight mechanism scores as exploratory.

For the Gender Role Scale, sampling adequacy was good (KMO = .86; Bartlett's test $p < .001$). An exploratory factor analysis returned three eigenvalues above 1 (5.65, 1.38, 1.09). The masculine items did not form a single dimension: competence-oriented items (analytical, rational, objective, logical, practical) loaded on one factor, whereas status- and dominance-oriented items (power-hungry, arrogant,

ostentatious) loaded together on a separate factor. Feminine and negative items separated as expected. This structure lends partial construct validity to a distinct power/dominance dimension—the cluster on which our power-orientation indicator sits—while also showing that the masculine subscale is internally heterogeneous (a point we revisit in the Discussion and Limitations).

Gender role orientation

Men endorsed the masculine-trait subscale more strongly than women (M = 4.27, SD = 0.66 vs. M = 3.75, SD = 0.44), $t(213) = 6.42$, $p < .001$, $d = 0.93$. Feminine-trait endorsement did not differ by gender (M = 4.54 vs. 4.47, d = 0.11), and negative traits did not differ significantly (d = − 0.19). At the item level, the largest gender gaps were for arrogance (d = 0.98), analytical orientation (d = 0.69), ostentatiousness (d = 0.69), and power-hunger (d = 0.61), all $p < .001$ (Table 1). Both men and women endorsed feminine-coded traits at similarly high levels, while men retained markedly higher endorsement of agentic, status-oriented masculine traits.

Table 1
Gender differences in gender role orientation (N = 215)

Subscale / item	**Men *M***	**Women *M***	**Cohen's *d***
Masculine subscale	4.27	3.75	0.93***
Feminine subscale	4.54	4.47	0.11
Negative subscale	4.13	4.27	−0.19
Arrogant	3.75	2.74	0.98***
Analytical	4.67	4.10	0.69***
Ostentatious	3.41	2.64	0.69***
Power-hungry	3.81	3.21	0.61***
Logical	4.59	4.19	0.54***
Passionate	4.55	4.15	0.40**
Rational	4.74	4.41	0.40**
Objective	4.60	4.35	0.36*
Tender	4.39	4.08	0.35*
Practical	4.58	4.33	0.34*
Note. *$p < .05$, **$p < .01$, ***$p < .001$. Non-significant items omitted for brevity.			

Moral disengagement by gender and mechanism

Men reported higher total moral disengagement than women (*M* = 3.27, *SD* = 1.20 vs. *M* = 2.62, *SD* = 0.79), *t*(213) = 4.40, *p* < .001, *d* = 0.61, 95% CI [0.33, 0.89]. Because the teams are single-sex, this is a between-team contrast (9 men's vs. 7 women's teams), and the individual-level *t*-test treats athletes as independent; the difference remained significant when modelled at the team level (multilevel model with team random intercept, *b* = 0.66, 95% CI [0.09, 1.22], *p* = .023; team-level *d* = 1.22), so the gender difference is robust to clustering even though its precision is bounded by the number of teams. Gender differences were significant for seven of the eight mechanisms, with medium-to-large effects: euphemistic labelling (*d* = 0.82), moral justification (*d* = 0.77), dehumanisation (*d* = 0.70), displacement of responsibility (*d* = 0.62), advantageous comparison (*d* = 0.57), distortion of consequences (*d* = 0.54), and attribution of blame (*d* = 0.49). All seven significant differences survived Bonferroni correction for eight comparisons (α = .006). The single exception, diffusion of responsibility, was the most strongly endorsed mechanism overall (*M* = 3.68) and did not differ by gender (*d* = − 0.01; Table 2, Fig. 1). The highest, gender-neutral endorsement thus fell on the one mechanism that distributes culpability across the collective (interpreted in the Discussion).

Table 2
Moral disengagement by mechanism and gender (N = 215)

Mechanism	**Men *M***	**Women *M***	**Cohen's *d***	***p***
Total moral disengagement	3.27	2.62	0.61	< .001
Euphemistic labelling	3.09	2.17	0.82	< .001
Moral justification	3.14	2.21	0.77	< .001
Dehumanisation	3.25	2.40	0.70	< .001
Displacement of responsibility	3.21	2.55	0.62	< .001
Advantageous comparison	3.22	2.56	0.57	< .001
Distortion of consequences	3.34	2.73	0.54	< .001
Attribution of blame	3.22	2.66	0.49	< .001
Diffusion of responsibility	3.68	3.69	−0.01	.96

Trait correlates of moral disengagement

Among gender role traits, the strongest correlates of total moral disengagement were power-hunger (*r* = .27, *p* < .001), ostentatiousness (*r* = .24, *p* < .001), passion (*r* = .19, *p* = .005), and analytical orientation (*r* = .18, *p* = .007); feminine-coded and negative traits were largely unrelated (Table 3). The trait correlates cluster around achievement, status, and power orientation.

Table 3

Correlations of gender role traits with total moral disengagement (N = 215)

Trait	*r*	*p*
Power-hungry	.27	< .001
Ostentatious	.24	< .001
Passionate	.19	.005
Analytical	.18	.007
Arrogant	.14	.048
Feminine subscale	.09	.18
Negative subscale	.06	.41

Note. Non-significant traits largely omitted; feminine and negative subscales shown for contrast.

Multilevel models: individual and coaching predictors

Moral disengagement showed substantial clustering by team (unconditional random-intercept variance = 0.35, residual variance = 0.87; ICC = 0.29), underscoring the need for multilevel estimation. In a random-intercept model, power orientation predicted higher moral disengagement (b = 0.23, 95% CI [0.09, 0.37], p = .001), as did coach gender, with athletes coached by men reporting higher moral disengagement (b = 0.60, 95% CI [0.03, 1.17], p = .039). Athlete gender was not a significant unique predictor once power orientation was included (b = 0.20, p = .53). Substituting the masculine-trait subscale for power orientation yielded the same pattern (masculine traits b = 0.15, p = .046; coach gender b = 0.64, p = .029; Fig. 2). We then tested whether power orientation mediates the gender difference. Because the 16 teams are single-sex, athlete gender is a team-level variable, so the mediation is necessarily a between-team process; estimated at the team level, the indirect path from gender through team-mean power orientation to moral disengagement was positive but not statistically significant with 16 teams (indirect b = 0.12, 95% CI [− 0.33, 0.64]). An individual-level bootstrap that treats the 215 athletes as independent returned a narrower, significant interval (indirect b = 0.13, 95% CI [0.04, 0.28]), but this overstates precision because the gender contrast exists only between teams; we therefore regard the team-level estimate as the appropriate one. The point estimate is consistent with partial mediation by power orientation, though it is not statistically robust given only 16 single-sex teams, and the masculine subscale showed no mediation at either level. What holds robustly is that power orientation predicts moral disengagement at the individual level (b = 0.23 above), independent of the underpowered gender-mediation question. Coach gender contributed an additional, modest team-level association, with a confidence interval approaching zero, that persisted in covariate-adjusted analyses controlling for division, starter status, national-team history, and playing experience; a parametric simulation indicated, however, that with only 16 teams the study had limited power to detect an effect of this size (≈ 54% at the observed coefficient), so this association should be treated as preliminary and in need of replication.

A descriptive analysis of perceived coach leadership style—measured with a single forced-choice item, almost entirely confounded with coach gender, and non-significant once team clustering was modelled—is reported in full in Supplementary Material 3. Because it does not survive multilevel estimation and is too confounded to interpret, we do not treat it as a finding here.

Discussion

This near-census yields three results that bear on the gendered production of harm in elite sport. First, the gender difference in moral disengagement was broad, spanning most mechanisms, and robust to clustering. Second, power orientation robustly predicted moral disengagement at the individual level; whether it accounts for the gender difference—necessarily a between-team question in these single-sex teams—remained underpowered with 16 teams. Third, coach gender retained an association with moral disengagement once team clustering was modelled.

A gendered trait pathway. Men reported higher moral disengagement than women across seven of eight mechanisms, with a medium individual-level effect that remained significant when modelled at the team level (men's vs. women's teams); the near-census design makes a sampling-bias explanation unlikely. The more informative, gender-theoretic question is whether power orientation accounts for this difference, and here the evidence is suggestive without being conclusive. Power orientation robustly predicted moral disengagement at the individual level, consistent with evidence that power reduces perspective-taking and heightens self-interested cognition (Côté et al., 2011) and with recent findings that masculine and dominance-oriented traits predict moral disengagement above gender category in an East Asian sample (Gan et al., 2024). Because the teams are single-sex, athlete gender is a team-level variable, so any mediation of the gender difference by power orientation is necessarily a between-team process; estimated at that level, with only 16 teams, the indirect effect was consistent in size with partial mediation but not statistically significant, and the broader masculine subscale showed no mediation. We therefore advance the trait pathway as a hypothesis—that gender differences in moral disengagement may be carried in part by socialised, status-oriented traits alongside sex category (Bem, 1981)—which this near-census is too small at the team level to confirm. The status-oriented reading also resonates with qualitative accounts of how a masculine habitus is embodied and recalibrated across elite athletic careers in Taiwan (Ho et al., 2026), suggesting that the trait cluster we index is cultivated within the sporting field. Two further cautions apply: power orientation was a single item (though the factor analysis showed it clustering with other status- and dominance-oriented traits, lending some construct support), so it needs replication with validated multi-item dominance and need-for-power measures; and any such pathway is partial. Read through a gender lens, the implication is nonetheless tractable: on replication, prevention can address a socialised, status-oriented cognition—the tendency to construe winning as licensing harm—in place of essentialising sex category.

Mechanism structure and collectivism. The single mechanism that did not differ by gender, diffusion of responsibility, was also the most strongly endorsed. The concentration of high, gender-neutral endorsement on the mechanism that spreads culpability across the collective fits the collectivist

emphasis on shared accountability (Triandis & Gelfand, 1998; Zhu et al., 2025). Where the self is construed as fundamentally interdependent (Markus & Kitayama, 1991), “the whole team is responsible” may be a more available rationalisation than individual self-justification, drawn from a shared cultural script more than a gendered one, which may explain why this mechanism alone showed no gender difference. We advance this only as a speculative, post-hoc hypothesis. We did not measure collectivist values in this sample, our characterisation of Taiwan as collectivist rests on the broader literature (Triandis & Gelfand, 1998) more than on participant-level data, and there was no individualist comparison group; a simpler explanation is equally tenable, namely that diffusion-of-responsibility items are less self-incriminating and so more readily endorsed regardless of culture. The cultural reading therefore awaits a direct test with measured cultural-orientation values and a cross-cultural design. This is double-edged for prevention: collective framing can dilute personal accountability for harm even as it supports cohesion, so harm-reduction messaging in collectivist settings may need to restore individual responsibility explicitly.

Coaching structure as a gendered exposure. Athletes coached by men reported higher moral disengagement, and this association survived adjustment for team clustering. Because more than three-quarters of these elite athletes trained under men coaches, the moral climates that men-led teams create function as a widely distributed exposure across the athlete population, and the gender composition of coaching is itself part of the gender order of sport. We do not interpret this as an essential property of men coaches; it more plausibly reflects gendered patterns in coaching norms and the broader masculine framing of elite sport, within which women coaches, as a numerical minority, may more deliberately cultivate care-oriented climates (LaVoi et al., 2019; Norman et al., 2018). Several alternative explanations remain open under the present design. The association may reflect selection (teams led by women may recruit or retain athletes who are lower in moral disengagement), structural differences between men- and women-led teams (in competitive intensity, training load, or institutional setting), or unmeasured coach characteristics such as age, tenure, and professional background, none of which we recorded. The theoretically more direct mechanism—coaches’ own modelling of (anti)social conduct—was also not measured. With 16 teams the effect was estimated with limited power. For these reasons we frame coach gender as a preliminary structural correlate more than an established causal influence; on replication with coach-level covariates and more teams, diversifying coaching structures may carry benefits for moral climate that extend beyond equity.

Implications for the prevention of gendered harm. The applied relevance of these findings rests on an explicit, if indirect, evidence chain: moral disengagement is the social-cognitive process that deactivates self-sanctions (Bandura, 1991, 2016); meta-analytic evidence links higher moral disengagement to more antisocial and less prosocial behaviour in sport (Zhu et al., 2025); and antisocial conduct in sport encompasses aggression, harassment, and abuse with documented, gendered consequences for physical safety and mental health (Mountjoy et al., 2016; Parent & Fortier, 2018). Our study addresses the first, antecedent link in this chain—who is prone to moral disengagement and in which coaching contexts—more than measuring harmful behaviour directly. Read against this chain, the two candidate targets are actionable through existing approaches. The cognitive-motivational target (construing competitive

success as licensing harm) aligns with moral-education and motivational-climate programmes that restructure how winning is valued; the empowering-coaching approach developed and trialled in the PAPA project, for example, trains coaches to foster task-involving, autonomy-supportive climates (Duda, 2013) that are theoretically antagonistic to the instrumental rationalisation of harm. The coaching-climate target similarly points to coach-directed intervention alongside athlete-focused messaging. We frame these as directions for intervention design and evaluation, not as established efficacy, which would require controlled trials measuring behavioural outcomes. Framed through a gender lens, targeting power-oriented masculine cognition and gendered moral climates addresses the gendered production of harm without essentialising or stigmatising men athletes or men coaches: the actionable levers are the construal of competitive success and the moral climate of teams—both modifiable.

Limitations

Several limitations bound these conclusions. First, the design is cross-sectional: all constructs were measured at a single time point, so the associations we report cannot be interpreted causally, and the temporal ordering of power orientation and moral disengagement in particular cannot be established. This caveat applies with special force to the mediation analysis, for one statistical and one structural reason. The statistical reason is that cross-sectional mediation can yield substantially biased estimates of the corresponding longitudinal indirect effect (Maxwell & Cole, 2007). The structural—and more fundamental—reason is that, because the teams are single-sex, athlete gender is perfectly confounded with team membership and has no within-team variance; the gender contrast and its mediation are therefore between-team comparisons across just 16 teams (9 men's, 7 women's), which cannot separate gender from coach gender or other team-level characteristics and leave the trait-mediation pathway underpowered. We report the indirect effect at the team level and treat it as a provisional, hypothesis-generating estimate. Second, all measures were self-reported on a single instrument, so responses to morally sensitive items are vulnerable to social-desirability bias (Krumpal, 2013) and the cross-construct associations may be inflated in part by common-method variance (Podsakoff et al., 2003); we did not administer a social-desirability scale to gauge this directly, and future studies should incorporate one or use less reactive indicators. Third, power orientation was indexed by a single masculine-subscale item; although the multi-item masculine subscale showed a convergent association with moral disengagement, single-item operationalisation of a complex construct constrains reliability and construct coverage (Podsakoff et al., 2003), and future work should use validated multi-item measures of agentic, status-, and power-oriented traits. Leadership style and team cohesion were likewise each assessed with a single item; the leadership-style analysis is additionally confounded with coach gender, did not survive multilevel estimation, and is therefore reported only in Supplementary Material 3. Fourth, the moral disengagement scale was strongly unidimensional in this sample, so mechanism-level results are exploratory; because the items load on a single dominant factor, the gender differences across the seven mechanisms are not statistically independent and may reflect one underlying effect more than eight, and whether this reflects a sample-specific property or a feature of the scale in collectivist contexts should be tested with confirmatory factor analysis before mechanisms are interpreted

separately. Although the dominant general factor (70.2% of the variance) justifies the pragmatic, empirically grounded decision to use the total score, the mediocre absolute fit of a strict single-factor model (CFI = .82) reflects substantial local dependence and underscores the need for future cross-cultural research to develop a validated short-form moral-disengagement instrument for East Asian elite sport. Fifth, we measured moral disengagement, a cognitive precursor, more than harmful behaviour itself; the applied relevance therefore rests on prior evidence linking moral disengagement to antisocial conduct in sport (Zhu et al., 2025). Sixth, the multilevel models rest on only 16 level-2 units (teams), below the 30–50 clusters commonly recommended for stable estimation of level-2 effects and their standard errors (Maas & Hox, 2005); a parametric simulation confirmed that power to detect the observed coach-gender effect was limited (≈ 54%), so this association, although robust to covariate adjustment, is imprecisely estimated and warrants replication across more teams. Seventh, several design features constrain interpretation: gender was recorded as a binary self-report item, so we could not examine non-binary or transgender identities, an important limitation for a gender analysis; we did not measure coach age, tenure, or background, leaving coach-level confounders unadjusted; the gender-trait inventory is a locally adapted instrument whose provenance the authors document in Supplementary Material 1, and our own factor analysis showed its masculine subscale to be internally heterogeneous; and the study was not pre-registered, so the confirmatory–exploratory boundary, though stated, was not externally fixed in advance. Finally, although near-census coverage of one sport in one country minimises sampling bias, it bounds generalisation to other sports, levels, and cultural contexts, and the collectivist interpretation in particular would be strengthened by direct comparison with an individualist sample.

Conclusion

In a near-census of elite Taiwanese volleyball athletes, the gender difference in moral disengagement was robust to team clustering, and power orientation predicted moral disengagement at the individual level. The between-team trait pathway linking the two was consistent in size with partial mediation but, with only 16 single-sex teams, statistically underpowered, and we therefore advance it as a hypothesis more than an established finding. Coach gender was independently associated with moral disengagement after accounting for team clustering, though preliminarily given the few teams. Because the data are cross-sectional, these findings are associational and cannot be read as causal effects, and longitudinal and intervention designs are needed to test the proposed pathways directly. With those caveats, by pointing to a candidate gendered cognitive pathway and a structural coaching correlate, these findings give the prevention of gendered harm in sport two candidate targets: the construal of competitive success as licensing harm, and the gendered moral climates of coaching environments.

Abbreviations

CFA, confirmatory factor analysis; CFI, comparative fit index; CI, confidence interval; ICC, intraclass correlation coefficient; KMO, Kaiser–Meyer–Olkin; MDSS, Moral Disengagement in Sport Scale; PN-SRI, Positive–Negative Sex-Role Inventory; RMSEA, root mean square error of approximation; SD, standard

deviation; STROBE, Strengthening the Reporting of Observational Studies in Epidemiology; TLI, Tucker–Lewis index.

Declarations

Ethics approval and informed consent

The study was approved by the Human Research Ethics Committee of National Cheng Kung University (approval no. NCKU HREC-E-115-0100-2). All research was performed in accordance with the Declaration of Helsinki and applicable institutional guidelines and regulations. Informed consent was obtained from all participants before data collection.

Data availability

The materials underpinning this study - including the de-identified participant-level and processed analytic datasets, data dictionary and coding scheme, survey instruments with item-to-scale mappings, data-collection protocol, and Python analysis scripts - will be supplied to the editors and referees through the submission system for peer-review purposes. The raw identifiable data will not be made publicly available because the near-census sampling frame and combination of athlete and team characteristics create a material risk of re-identification, and participants did not consent to unrestricted public disclosure. Subject to approval by the responsible ethics committee and appropriate safeguards, additional de-identified materials may be requested from the corresponding author.

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Figures

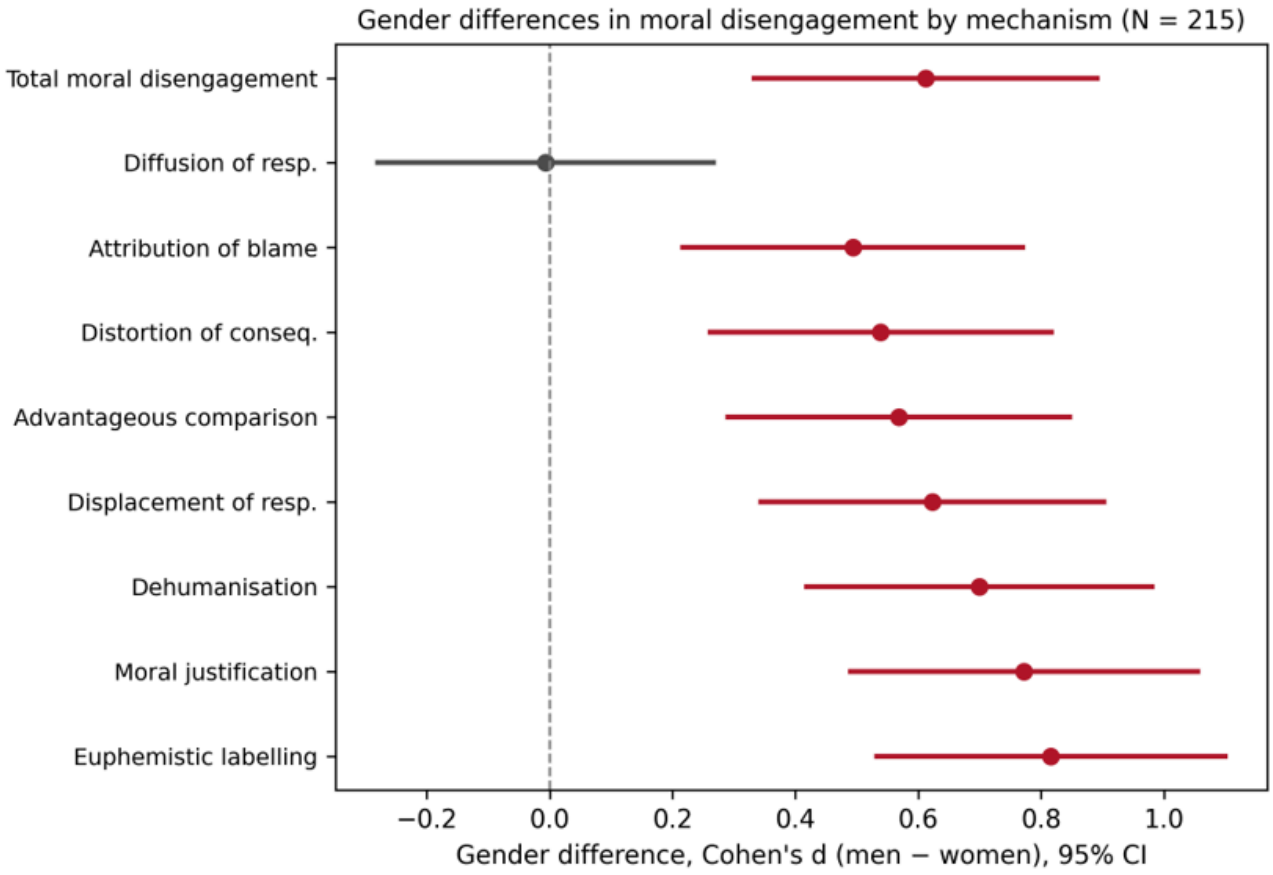


Figure 1

Gender differences (Cohen's d, men − women, with 95% CI) in total moral disengagement and its eight mechanisms (N = 215)

Note. Seven mechanisms show significant medium-to-large male-higher differences; diffusion of responsibility does not differ by gender.

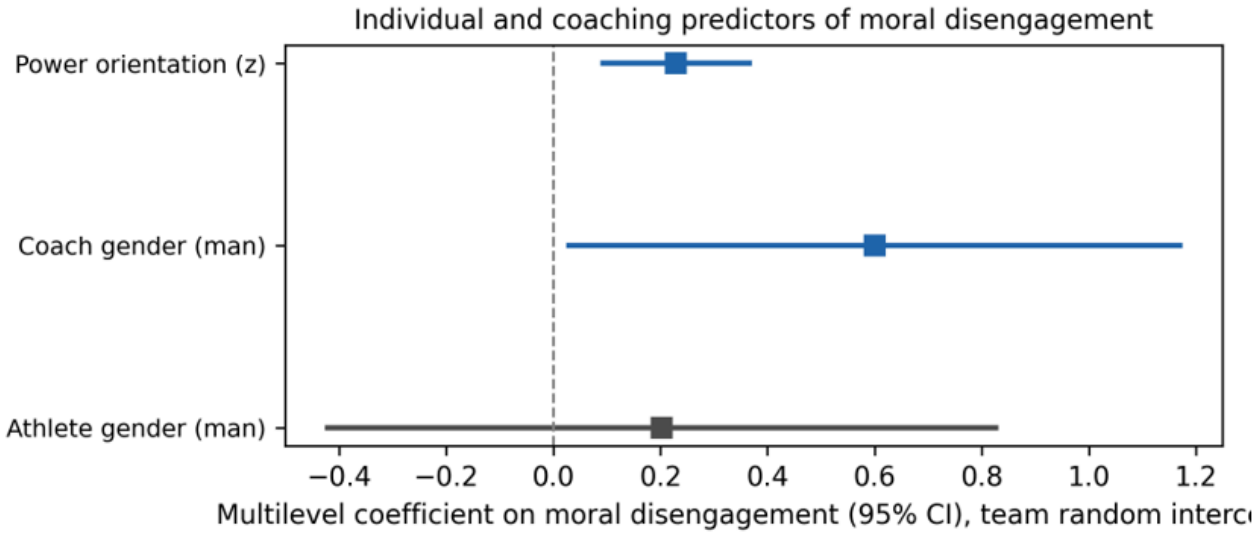


Figure 2

Multilevel (team random-intercept) coefficients with 95% CIs for individual and coaching predictors of moral disengagement

Note. Power orientation and coach gender are significant; athlete gender is not once power orientation is included.