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Help or Handicap? How Gender Moderates Pay Outcomes in Same-Gender Work Groups

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ABSTRACT

Prominent anecdotal evidence from music and sports suggests wide pay gaps between members of all-men versus all-women teams, despite minimal gender pay gaps between solo performers. Across two field studies and two experiments, we demonstrate that working in same-gender groups creates divergent pay outcomes for women versus men: all-men groups receive the highest pay while all-women groups receive the lowest, resulting in a significantly wider gender pay gap at the group level than at the individual level. We theorize that this asymmetry stems from differential perceptions of intergroup social competition enhancement strategy, as all-women groups are perceived as engaging in collective action to challenge status hierarchies, while all-men groups are not. These perceptions mediate the relationship between group composition and pay, denying women the legitimacy benefits that all-men groups receive. Our findings contribute to gender bias research by revealing that gender pay gaps compound at the group level: men working together receive advantages that women working together do not, perpetuating pay inequities through group-level bias mechanisms.

1 | Introduction

Across annual rankings of the world's highest-paid celebrities, a striking pattern emerges: working in same-gender groups creates divergent outcomes for women versus men. For men, same-gender grouping appears advantageous, as all-male groups like U2, The Beatles, and the Backstreet Boys dominate music earning lists (Fried 2010; Voytko 2023), and male athletes in team sports like LeBron James and Lionel Messi consistently lead global athlete earning rankings (Knight et al. 2022). For women, the pattern reverses. Among musicians, top-earning women such as Taylor Swift and Beyoncé are consistently solo acts (Cooper et al. 2017; Voytko 2023), and among athletes, women in solo sports like tennis and golf occupy the ranks of the highest-earning athletes, even in years with widely viewed team events like the FIFA Women's World Cup. This asymmetry extends beyond individual celebrities: women's team sports attract smaller media deals than comparable men's leagues despite equal or even higher viewership (e.g., Thompson and Voepel 2021; Harris 2024). Indeed, gender pay gaps are far narrower in individual sports (e.g., tennis, golf, and CrossFit) than team sports (Futterman 2023; Laxton 2022), suggesting that same-gender grouping compounds pay disparities rather than equalizing them.

Why do men appear to financially benefit from working in same-gender groups, while women do not? Our research goal is to explore how gender alters the influence of group membership on pay, revealing that the gender pay gap tends to compound at the group level. Most gender pay gap research focuses on individual employee characteristics and structural factors that produce differential pay for men and women (Bishu and Alkadry 2017; Blau and Kahn 2007, 2017; Hoff and Lee 2021). We build on this work but shift focus to group dynamics, comparing how perceptions and pay expectations change when workers move from solo work arrangements to same-gender work groups. We argue that

gender can differentially shape how same-gender groups are perceived (Chattopadhyay et al. 2004; Tajfel and Turner 1986), compounding advantages for men relative to women.

This pattern arises from three interconnected mechanisms: first, perceptions of individuals are fundamentally shaped by their group membership; second, groups are perceived as more cohesive and powerful than the sum of their individual members (Allison and Messick 1985; Bandura 1986); and third, social status expectations determine whether this amplified group power is interpreted as legitimate or threatening (Chattopadhyay et al. 2004; Tajfel and Turner 1986). The result is a cognitive asymmetry: all-men groups tend to be seen as embodying legitimate collective strength that reinforces extant male-dominant hierarchies, while all-women groups tend to be seen as more threatening to the status quo.

Further, we theorize that perceived intergroup social competition enhancement strategy, which is the perception that a lower-status group is taking collective action to advance at the expense of the dominant group, prevents women in all-women groups from reaping the same benefits as men in all-men groups. We argue that in masculine status hierarchies, women's same-gender grouping elicits perceptions that women members are socially competitive and threatening. Conversely, men's same-gender grouping reinforces existing status hierarchies and signals legitimate authority. We thus propose that men benefit from working in an all-men group as their grouping aligns with normative expectations, whereas their women counterparts do not.

Our set of studies makes three key contributions. First, we identify a novel group-level phenomenon: men gain a pay advantage when working in same-gender groups, while women do not, revealing that the gender pay gap widens at the group level. While prior research has focused on solo women in male-dominated groups (Duguid 2011; Heilman and Haynes 2005; Rudman et al. 2012; Sarsons et al. 2021) or token penalties (Eagly et al. 2000; Heilman and Okimoto 2007), we demonstrate that all-women groups face systematic penalties merely because of their composition. Second, we identify perceived intergroup social competition enhancement strategy as a key perceptual mechanism linking group gender composition to pay outcomes, showing how collective male presence receives legitimacy benefits while collective female presence does not. Third, our findings illuminate why gender pay gaps persist in group settings despite efforts toward transparency, algorithmic fairness, and structural reform (Kallus et al. 2022; Lyons and Zhang 2023; Sharkey et al. 2022).

We test our hypotheses across four studies using both field and experimental methods. Two field studies in professional athletics and healthcare establish ecological validity. Two experiments provide causal evidence and internal validity. Our studies build systematically: Studies 1–2 demonstrate how gender moderates the effect of group membership on pay, while Studies 3–4 test whether perceived intergroup social competition enhancement strategy mediates these effects. As a boundary condition to our hypothesizing and study designs, we note that our work focuses on how this phenomenon unfolds specifically within male-dominated contexts. We return to this point in the General Discussion section.

2 | Theory and Hypotheses

Workplace gender research has identified numerous biases that women face when working alongside men or in male-dominated contexts. Women experience tokenism when they are the only woman in a group (Ely 1995; Farh et al. 2020; Kanter 1977), "twokenism" when there are only two women (Chang et al. 2019, 144), and in gender-balanced groups, male members receive disproportionate credit for collaborative work (Sarsons et al. 2021). Given these findings, women might reasonably conclude that working exclusively with other women would help them avoid gender bias while benefiting from same-gender group dynamics.

However, we suggest that working in same-gender groups may also exacerbate gender pay disparities. Our logic builds on research showing that group cohesion and unity amplify bias expression, as raters exhibit more stereotyping when evaluating highly cohesive and unified demographic groups (Agadullina and Lovakov 2018; Effron and Knowles 2015; Rydell et al. 2007). Same-gender work groups make gender a salient marker of group membership and cohesion, amplifying gender-based evaluations (Hogg and Terry 2000). Members of same-gender groups are thus less likely to be judged on individual merits and more likely to be evaluated through biases applied to the group as a whole.

All-men groups may tend to be perceived as embodying legitimate collective strength and competence, signaling continuity with established hierarchies. Such a legitimacy dividend would tend to enhance pay expectations for men in same-gender groups compared to men working solo. In contrast, all-women groups may violate prototype expectations, particularly in male-dominated contexts. Rather than benefiting from collective strength, women in all-women groups may face increased gender bias (Rudman et al. 2012), as their grouping may heighten perceptions that they represent a challenge to existing hierarchies. The collective presence and cohesion that constitute an advantage for men simultaneously become a disadvantage for women (Phillips et al. 2022), creating a larger gender pay gap at the group level than at the individual level.

We thus theorize that gender alters the influence of group membership on pay. Working in same-gender groups (compared to working solo) tends to create divergent outcomes: men in all-men groups will tend to receive the highest pay evaluations, while women in all-women groups will tend to receive the lowest.

Hypothesis 1. *The influence of group membership* (*solo* vs. *same-gender group*) *on pay will be moderated by gender. Specifically, working in same-gender groups is more positively associated with pay for men than for women, thereby widening the gender pay gap at the group level compared to the individual level.*

3 | Perceived Intergroup Social Competition Enhancement Strategy

We next argue that theory on group status enhancement strategies (Chattopadhyay et al. 2004) helps to explain why all-women groups may face less favorable evaluations than all-men groups. Status enhancement strategies describe the tactics

group members use to improve or maintain their social standing (Chattopadhyay et al. 2004; Tajfel and Turner 1986). We theorize that perceptions of which strategy a group employs vary systematically by gender and group membership, influencing divergent pay outcomes.

Chattopadhyay et al. (2004) identify three status enhancement strategies that lower-status groups may pursue: social mobility (individual assimilation into the dominant group), social creativity (cognitive reframing of valued attributes), and social competition (collective action to challenge existing hierarchies). We focus on perceived intergroup social competition enhancement strategy because it is the only strategy that both threatens the status quo and is negatively judged by external observers.[1] Social mobility represents an individual-level strategy that does not systematically differ between solo workers and same-gender groups. Social creativity involves internal cognitive reframing rather than collective change-making. Neither social mobility nor social creativity present a threat to the status of dominant group members. In contrast, perceived intergroup social competition enhancement strategy involves the perception that a lower-status group is taking collective action to advance at the expense of the dominant group, which is a perception that threatens the status quo.

We suggest that when men group together, their collective presence amplifies high-status perceptions, but when women group together, their collective presence solidifies low-status perceptions as gender becomes a defining group marker (Ahmad et al. 2022). Members of lower-status groups tend to be perceived as seeking to challenge hierarchies to improve their standing (Chattopadhyay et al. 2004; Tajfel and Turner 1986). Thus, we theorize that members of all-women groups will tend to be viewed as engaging in a perceived intergroup social competition enhancement strategy, that is, seeking to advance their own group at the expense of men and thereby disrupting entrenched hierarchies (Chattopadhyay et al. 2004; Tajfel and Turner 1986). This includes potentially threatening perceptions of advocating for institutional change, calling out bias, or pursuing legal remedies for discrimination (Borkowski et al. 2023; Chattopadhyay et al. 2004).

In contrast, we do not expect observers to perceive members of all-men groups as threatening. All-male groups (e.g., stereotypical music bands, sports teams, military units, boards of directors) reinforce rather than challenge existing power structures (Vandello et al. 2008). As members of the higher-status group (Bryan and Lyons 2024), men are expected to preserve hierarchical dominance (Chattopadhyay et al. 2004; Tajfel and Turner 1986), which allows members of all-men groups to realize collective benefits without triggering threat perceptions.

Taken together, women who work in all-women groups will tend to be viewed unfavorably, receiving increased gender bias (Rudman and Fairchild 2004; Rudman et al. 2012), and triggering perceptions of intergroup social competition. In contrast, men who work in all-men groups will tend to be viewed favorably, receive a legitimacy dividend (Agadullina and Lovakov 2018; Effron and Knowles 2015), and avoid triggering perceptions of intergroup social competition.

Hypothesis 2. *The influence of group membership (solo vs. same-gender group) on perceived intergroup social competition enhancement strategy will be moderated by gender. Specifically, working in same-gender groups increases perceived intergroup social competition enhancement strategy for women but not for men, thereby widening gender differences in perceived social competition at the group level compared to the individual level.*

4 | Mediation Through Perceived Intergroup Social Competition Enhancement Strategy

Having established that same-gender group membership affects both pay outcomes (H1) and perceived intergroup social competition enhancement strategy perceptions (H2) differently for women versus men, we now theorize about the mechanism linking these effects. We propose that perceived intergroup social competition enhancement strategy serves as the psychological process through which group membership influences pay evaluations in a gender-differentiated manner.

We suggest that when women work in all-women groups, observers tend to perceive them as engaging in collective social competition to challenge existing status hierarchies. These perceptions of collective competitive behavior, in turn, shape judgments about what women in all-women groups deserve to be paid. We draw on Chattopadhyay et al.'s (2004) framework suggesting that when members of a higher-status group perceive a threat to "the legitimacy or stability of the status hierarchy," they "will show more ingroup identification" (p. 194). In male-dominated contexts, this corresponds to anxiety-based, ingroup-protective responses, which are behaviors aimed at guarding men's higher status through favoritism toward all-men groups. Such subtle forms of bias expression elevate pay evaluations for all-men groups while denying similar advantages to all-women groups (Bareket and Fiske 2023; Glick and Fiske 1996).

In contrast, men in all-men groups are not perceived as engaging in perceived intergroup social competition enhancement strategy. Because all-men groups are viewed as ordinary or expected and signal continuity with established hierarchies, they receive a legitimacy benefit, especially in male-dominated workplace contexts. This absence of perceived social competition allows men in all-men groups to be evaluated favorably, receiving higher pay through ingroup favoritism from dominant group members. Meanwhile, women in all-women groups tend to be perceived as threatening the status quo through social competition, which blocks them from receiving similar legitimacy benefits.

Particularly in male-dominated contexts, we theorize that observers often make pay judgments based on masculine norms and the degree to which employees appear to support those norms (Buser et al. 2014; Cheryan and Markus 2020; Hoobler et al. 2009; Rudman et al. 2012). All-men groups signal norm adherence and hierarchy preservation, triggering legitimacy benefits that elevate pay. All-women groups signal potential norm violation and hierarchy challenge through increased perceptions of intergroup social competition, which denies them these same benefits. The gender pay gap thus becomes significantly wider

at the group level than at the individual level, with same-gender grouping conferring advantages to men through perceived legitimacy while offering no such advantages to women perceived as threatening.

Hypothesis 3. *Perceived intergroup social competition enhancement strategy will mediate the moderated effect of group membership on pay. Specifically, the influence of group membership* (*solo* vs. *same-gender group*) *on pay through perceived intergroup social competition enhancement strategy will be moderated by gender, such that the indirect effect will be positive for men* (*all-men groups are not perceived as socially competitive, leading to higher pay*) *but not for women* (*all-women groups are perceived as more socially competitive, blocking similar pay benefits*).

5 | Methods

Studies 1 and 2 test Hypothesis 1 (same-gender group membership widens the gender pay gap) using three-level and two-level hierarchical linear modeling, respectively (Bates et al. 2015; Raudenbush and Bryk 1986). Study 3 tests Hypothesis 2 (same-gender group membership increases perceived intergroup social competition enhancement strategy for women but not men) using hierarchical moderated regression. Study 4 tests all three hypotheses, including Hypothesis 3 (perceived intergroup social competition enhancement strategy mediates the moderated effect), using two-level hierarchical linear modeling with bootstrap analysis for mediation testing. We examined male-dominated contexts where gender pay gaps are well-documented (Bittner and Lau 2021; Hoff and Lee 2021; Zerunyan 2017) to explore whether and why these gaps widen at the group level. Study 4 was preregistered (https://aspredicted.org/CQF_DVP) and all studies received IRB approval (details redacted for blind review). Complete analytical details, datasets, and code are available in our OSF repository here: https://osf.io/7wvb9/?view_only=35272f97761643029b15c0d21ee429ca.

6 | Study 1

6.1 | Sample and Analytical Approach

To test Hypothesis 1, we analyzed prize money data from 1145 major international sports competition events across 2014–2021, compiled by BBC Sport (BBC 2021). The dataset includes events from 44 different sports such as the Slalom World Cup (canoeing), the World Surf League Championship Tour (surfing), the FIFA World Cup (soccer), and the World Tour Grand Finals (table tennis). Within those different sports, the data were further grouped by the competition governing body that determined prize money.

To analyze the data, we employed three-level multilevel modeling (Hofmann et al. 2000) with events at Level 1 (e.g., men's singles, women's singles, men's doubles, women's doubles), nested within governing bodies at Level 2 (e.g., Wimbledon, U.S. Open, FIFA), nested within sports at Level 3 (e.g., tennis, golf, soccer). Random intercepts for governing body and sport control for organizational differences in budget, sponsorship revenue, and marketing resources, as well as normative prize money expectations across sports. This approach allowed us to test whether gender moderates the effect of group membership (solo vs. team) on prize money.

After listwise deletion, the sample included events from 936 events, 56 governing bodies, and 44 sports. On average, each governing body had 20.07 sport competitions (SD = 22.48), and there was an average of 25.42 competitions (SD = 24.38) per sport.

6.2 | Measures

6.2.1 | Group Membership

We coded whether athletes competed individually or as part of a group (0 = solo event, 1 = group event). Events with two or more group members were coded as group events.

6.2.2 | Gender

We coded each event for gender (0 = men, 1 = women). Six events (0.6%) involved mixed-gender groups (e.g., pairs figure skating). The small number of mixed-gender events precluded us from drawing meaningful statistical comparisons and were excluded from analyses to maintain the focus on same-gender groups, though results were nearly identical when they were included (coded as 0.5).

6.2.3 | Athlete Compensation

Our dependent variable was prize money per athlete in British pound sterling (£), calculated by dividing total prize money by the number of athletes on the winning side. For individual events, total prize money was divided by one; for group events, it was divided by the number of team members.

6.2.4 | Controls

At Level 1, we controlled for *competition year* (dummy coded) to account for temporal trends in gender pay gaps, and *group size* (grand mean centered) because it may affect status perceptions.[2] At Level 3, we controlled for *percent women* participating in each sport globally (grand mean centered) to account for status differences across male-dominated versus female-dominated sports. Finally, the dataset contained a built-in control for performance: all athletes had to win their event to receive the prize money, ensuring they all had the same binary performance (i.e., winning first place).

6.3 | Results and Discussion

Means, standard deviations, and correlations for all variables are presented in Table 1.[3] Table 2 presents the results of hierarchical multilevel models. We found support for Hypothesis 1, which predicts that men in all-men groups receive significantly higher pay than women in all-women groups. Even

TABLE 1 | Study 1: Variable means, standard deviations and correlations.

		M	SD	1	2	3	4	5	6	7
Level 1: variables										
1	Athlete compensation (£)	483,707.01	2,967,188.05	—	—	—	—	—	—	—
2	Group membership	0.20	0.40	−0.03	—	—	—	—	—	—
3	Gender	0.50	0.50	−0.06*	0.00	—	—	—	—	—
4	Group size	3.78	6.93	0.04	0.79***	−0.01	—	—	—	—
5	Year 2014	0.25	0.43	−0.02	0.00	0.00	0.00	—	—	—
6	Year 2017	0.25	0.43	0.03	0.03	0.00	0.00	−0.33***	—	—
7	Year 2019	0.25	0.43	0.02	0.02	0.00	0.00	−0.33***	−0.33***	—
Level 3: variable										
8	Percent women in sport	0.44	0.15	−0.08*	−0.09**	0.00	−0.32***	0.00	0.00	0.00

Note: $N_1 = 936$. $N_2 = 56$. $N_3 = 44$. Group Membership (0 = solo, 1 = group). Gender (0 = man, 1 = woman).
***$p < 0.001$.
**$p < 0.01$.
*$p < 0.05$.

after accounting for between-organization and between-sport differences in baseline prize money, Model 3 (Table 2) shows that the interaction of Group Membership × Gender on athlete compensation is negative and significant ($b = -154{,}315.84$, $t(878) = -3.23$, $p = 0.001$). Figure 1 plots this interaction: the simple slope is positive for men ($b = 71743$, $t(388) = -1.09$, $p = 0.278$) and negative for women ($b = -82573$, $t(352) = -1.30$, $p = 0.184$). The significant interaction coefficient indicates that these slopes are significantly different from each other, showing that the effect of group membership on pay is more positive for men than for women. Table 3 displays marginal means: men in group events earned £308,069 compared to £129,725 for women in group events, while men and women in solo events showed minimal pay difference (£237,956 vs. £214,616). These results demonstrate that same-gender group composition amplifies gender pay disparities in ways that solo work contexts do not, supporting Hypothesis 1.

To explore whether gender pay gaps are influenced by same-gender group membership in a more conventional workplace, we next conducted Study 2 among professional healthcare providers.

7 | Study 2

7.1 | Sample and Analytical Approach

We obtained demographic and salary data for all 682 medical providers (429 men, 253 women, $M_{age} = 49.26$ years) employed by a large health maintenance organization (HMO) in the northwestern United States. Providers were organized across 18 geographic clinic locations, 44 medical specialties (e.g., obstetrics, pediatrics, oncology), and six degree types (e.g., MD, ARNP, CNM, PhD). Group size ranged from 1 to 23 providers ($M = 4.74$, SD = 4.17). The sample included 63 gender-homogeneous groups (24 all-women groups with 45 providers; 39 all-men groups with 106 providers) and 81 mixed-gender groups with 531 providers.

To analyze the data, we conducted multilevel modeling, nesting providers (Level 1) within the 18 geographic clinic locations (Level 2), to test whether the joint effect of gender and group membership on salary persists even after accounting for clinic variance. We used random intercept models and grand-mean centered all continuous predictor and control variables to enhance interpretability.

7.2 | Measures

7.2.1 | Group Membership

The HMO defined groups as providers sharing the same specialty and highest medical degree within the same geographic location (e.g., two midwives in Tacoma, four psychiatrists in Seattle, one orthopedic surgeon in Olympia). We coded this as 0 = solo provider, 1 = group provider (two or more providers).

7.2.2 | Group Gender Composition

We operationalized gender in two ways depending on the analysis. First, in analyses including mixed-gender groups (Table 5a): We calculated group gender composition as the percentage of women in each provider's work unit, ranging

TABLE 2 | Study 1: Multi-level model analyses.

	Prize money per athlete								
	Model 1			Model 2			Model 3		
Predictors	***B* (SE)**	**CI**	***p***	***B* (SE)**	**CI**	***p***	***B* (SE)**	**CI**	***p***
Intercept	211787.13 (57114.24)	99698.93–323875.32	< 0.001	241266.62 (58939.77)	125595.44–356937.81	< 0.001	228319.64 (59147.53)	112240.56–344398.73	< 0.001
2014	−22820.26 (25363.66)	−72597.11 to 26956.60	0.369	−23448.54 (25293.72)	−73088.27 to 26191.20	0.354	−22807.51 (25156.57)	−72178.15 to 26563.14	0.365
2017	34024.08 (25060.43)	−15157.68 to 83205.83	0.175	33136.72 (24994.06)	−15914.93 to 82188.37	0.185	33034.64 (24857.61)	−15749.28 to 81818.56	0.184
2019	25271.09 (23697.45)	−21235.79 to 71777.96	0.287	25006.90 (23629.46)	−21366.67 to 71380.46	0.290	25028.97 (23500.27)	−21091.12 to 71149.07	0.287
Average group size	−1153.03 (4515.62)	−10015.05 to 7708.98	0.799	106.28 (5774.07)	−11225.52 to 11438.07	0.985	−1339.03 (5774.80)	−12672.28 to 9994.22	0.817
Percent women in sport	−31764.02 (155547.51)	−337030.11 to 273502.07	0.838	15372.99 (160882.80)	−300364.63 to 331110.62	0.924	57359.12 (160699.56)	−258019.33 to 372737.58	0.721
Group membership	—	—	—	−22746.78 (58799.99)	−138143.63 to 92650.07	0.699	71742.67 (65393.91)	−56595.15 to 200080.48	0.273
Gender	—	—	—	−46135.74 (17163.97)	−79820.57 to 12450.90	0.007	−23230.19 (18487.00)	−59511.56 to 13051.18	0.209
Group × Gender	—	—	—	—	—	—	−154315.84 (47822.67)	−248169.50 to 60462.19	0.001
Random effects									
σ^2	68379366534			67973181307			67230003501		
τ_{00}	$0.00_{\text{sportid:govbody}}$ $158998707901.93_{\text{govbody}}$			$0.00_{\text{sportid:govbody}}$ $158490329056.77_{\text{govbody}}$			$0.00_{\text{sportid:govbody}}$ $159328942845.30_{\text{govbody}}$		
R^2	0.007			0.015			0.027		

Note: $N_1 = 936$. $N_2 = 56$. $N_3 = 44$. CI = 95% Confidence Interval. Gender (0 = man, 1 = woman). Group membership (0 = solo, 1 = group).

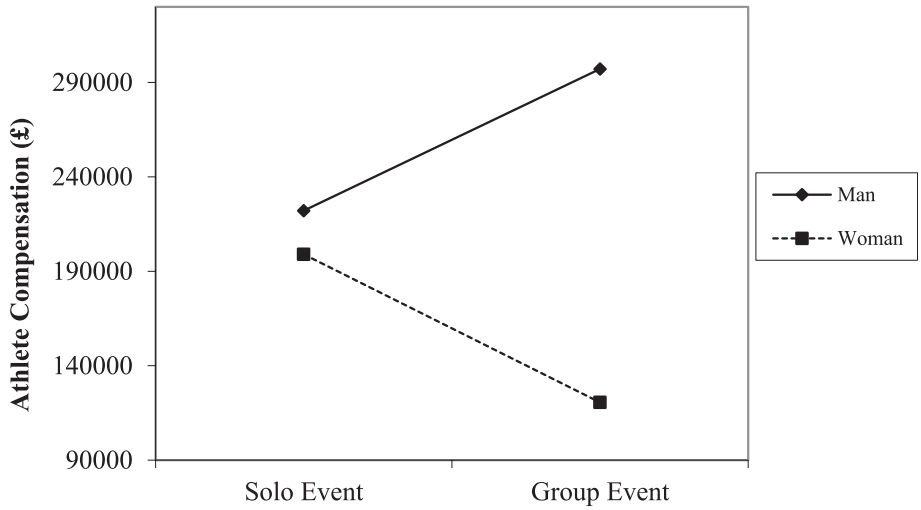

FIGURE 1 | Study 1: Interaction plot (from Model 3 of Table 2).

TABLE 3 | Study 1: Cell means comparison.

Condition	Athlete compensation
Solo men	£237,956
Group men	£308,069[a]
Solo women	£214,616
Group women	£129,725[b]

Note: $N_1 = 936$. $N_2 = 56$. $N_3 = 44$.
[a]Significant difference ($p < 0.001$) from Group women.
[b]Significant difference ($p < 0.001$) from Group men.

continuously from 0% to 100%. This allowed us to capture variation in mixed-gender groups (e.g., one woman working with five men = 17% women), while solo providers remained at 0% (men) or 100% (women) and same-gender groups remained at 0% (all-men) or 100% (all-women). Second, in analyses restricted to gender-homogeneous groups (Table 5b): We coded provider gender as a binary variable (0 = man, 1 = woman), which directly indicates group composition since solo providers work alone and group providers work in all-men or all-women groups. Both operationalizations test the same theoretical prediction but allow us to either incorporate the full sample including mixed-gender work units (Table 5a) or focus exclusively on same-gender contexts (Table 5b).

7.2.3 | Provider Salary

The HMO provided each provider's annual salary, measured in U.S. dollars.

7.2.4 | Controls

At Level 1, we controlled for provider *age*, *race* (0 = White, 1 = non-White), *years since earning highest medical degree*, *full-time equivalent* (proportion of full-time hours worked), and *group size*. To address occupational status concerns, we controlled for *medical degree type* (0 = non-physician degree, 1 = physician degree), as physician degrees carry higher status, and *family medicine specialty* (0 = other specialty, 1 = family medicine), as family medicine is the most common specialty in our sample (33%) and carries lower status than more specialized fields (Hatton 2023; Larson 2023).

Finally, we also controlled for *patient satisfaction* as a performance indicator. The organization provided this data in aggregated form: each quarter, patients rated their provider on three items (attentiveness, opportunity to ask questions, thoroughness) using a 5-point scale (1 = *very dissatisfied* to 5 = *very satisfied*), and the organization supplied the percentage of each provider's patients who reported satisfaction (ratings of 4 or 5) across the three items ($M = 51\%$, SD = 18%).

7.3 | Results and Discussion

Table 4 reports means, standard deviations, and correlations. Tables 5a and 5b report multilevel regression results with and without controls, including (Table 5a) and excluding (Table 5b) providers in mixed-gender groups.

Hypothesis 1 predicts that gender composition moderates the effect of group membership on pay, such that gender pay gaps are larger in same-gender groups than among solo providers. Supporting this prediction, the Group Membership × Gender Composition (Percent Women) interaction significantly predicted salary when including mixed-gender groups (Table 5a, Model 2: $b = -509.41$, $t(673) = -2.26$, $p = 0.024$; Model 5 with controls: $b = -547.78$, $t(667) = -3.00$, $p = 0.003$) and when restricting analyses to gender-homogeneous groups (Table 5b, Model 7: $b = -693.50$, $t(145) = -2.92$, $p = 0.004$; Model 10 with controls: $b = -621.25$, $t(139) = -3.23$, $p = 0.002$).

Figure 2 plots this interaction: the simple slope is positive for men ($b = 24{,}959$, $t(670) = 2.70$, $p = 0.007$) and negative for women ($b = -29818$, $t(665) = -1.59$, $p = 0.113$). Again, the significant interaction coefficient indicates the slopes are significantly different from each other, such that the effect of group membership on pay is more positive for men than women. Marginal means

TABLE 4 | Study 2: Level 1 variable means, standard deviations and correlations.

		M	SD	1	2	3	4	5	6	7	8	9	10
1	Provider annual salary	$150,357.83	$67,933.99	—	—	—	—	—	—	—	—	—	—
2	Percent women	37.1	26.27	−0.41***	—	—	—	—	—	—	—	—	—
3	Group membership	0.95	0.21	0.14***	−0.11**	—	—	—	—	—	—	—	—
4	Years since degree	11.56	8.44	0.14***	−0.09*	0.01	—	—	—	—	—	—	—
5	Age	49.26	7.66	0.17***	−0.13***	−0.02	0.64***	—	—	—	—	—	—
6	Full time equivalent	0.75	0.31	0.25***	−0.16***	−0.09*	0.07	−0.03	—	—	—	—	—
7	Race	0.25	0.43	−0.08*	−0.02	0.10*	−0.20***	−0.17***	−0.33***	—	—	—	—
8	Patient satisfaction	0.52	0.10	−0.04	0.22***	−0.01	−0.00	−0.00	−0.00	−0.04	—	—	—
9	Group size	8.39	5.73	−0.01	0.04	0.29***	0.08*	−0.01	−0.15***	0.04	−0.00	—	—
10	Medical Degree	0.84	0.36	0.51***	−0.32***	0.19***	0.07	0.04	0.00	−0.02	−0.11**	0.32***	—
11	Family medicine specialty	0.33	0.47	−0.36***	0.09*	0.07	0.10**	0.02	−0.08*	−0.02	−0.11**	0.42***	0.00

Note: $N_1 = 682$. $N_2 = 18$. Group Membership (0 = solo, 1 = group).
***$p < 0.001$.
**$p < 0.01$.
*$p < 0.05$.

TABLE 5a | Study 2: Model analyses, including mixed gender groups.

	Provider annual salary ($)													
	Model 1			Model 2			Model 3			Model 4			Model 5		
Predictors	***B*** **(SE)**	**CI**	***p***	***B*** **(SE)**	**CI**	***p***	***B*** **(SE)**	**CI**	***p***	***B*** **(SE)**	**CI**	***p***	***B*** **(SE)**	**CI**	***p***
Intercept	117829.21 (11500.51)	95248.25–140410.18	<0.001	112445.93 (11724.94)	89424.25–135467.62	<0.001	75117.65 (7649.05)	60098.71–90136.60	<0.001	72892.46 (10977.69)	51337.58–94447.33	<0.001	68001.07 (11018.59)	46365.82–89636.32	<0.001
Years since degree	—	—	—	—	—	—	413.66 (296.78)	−169.07 to 996.38	0.164	400.95 (287.88)	−164.32 to 966.21	0.164	391.08 (286.22)	−170.92 to 953.07	0.172
Full time	—	—	—	—	—	—	47897.08 (6412.81)	35305.49–60488.67	<0.001	41644.63 (6335.82)	29204.15–54085.11	<0.001	41780.01 (6299.54)	29410.72–54149.30	<0.001
Age	—	—	—	—	—	—	1018.19 (325.37)	379.32–1657.06	0.002	871.08 (317.05)	248.54–1493.61	0.006	882.34 (315.20)	263.44–1501.24	0.005
Race	—	—	—	—	—	—	4795.63 (4674.52)	−4382.82 to 13974.07	0.305	842.47 (4574.92)	−8140.47 to 9825.41	0.854	1268.52 (4550.59)	−7666.66 to 10203.69	0.781
Patient satisfaction	—	—	—	—	—	—	−19473.85 (19290.20)	−57350.27 to 18402.56	0.313	5787.09 (19159.79)	−31833.47 to 43407.66	0.763	10334.42 (19108.57)	−27185.66 to 47854.50	0.589
Group size	—	—	—	—	—	—	−389.26 (436.18)	−1245.71 to 467.19	0.372	−125.32 (430.21)	−970.03 to 719.40	0.771	−54.92 (427.73)	−894.78 to 784.93	0.898
Medical degree	—	—	—	—	—	—	94504.54 (5678.28)	83355.20–105653.88	<0.001	80176.73 (5894.40)	68602.98–91750.48	<0.001	79903.37 (5858.60)	68399.88–91406.87	<0.001
Family medicine specialty	—	—	—	—	—	—	−43262.12 (5509.99)	−54081.01 to 32443.22	<0.001	−44306.46 (5271.60)	−54657.32 to 33955.59	<0.001	−45085.15 (5235.12)	−55364.43 to −34805.87	<0.001
Group membership	16930.65 (10740.72)	−4158.47 – 38019.78	0.115	22286.45 (10969.25)	748.54–43824.35	0.043	—	—	—	19387.94 (9095.47)	1528.84–37247.05	0.033	24959.41 (9228.50)	6839.05–43079.77	0.007
Gender	−1010.94 (86.35)	−1180.49 to −841.39	<0.001	−591.60 (204.32)	−992.78 to −190.41	0.004	—	—	—	−483.54 (78.93)	−638.52 to −328.56	<0.001	−37.29 (168.39)	−367.94 to 293.35	0.825
Group × Gender	—	—	—	−509.47 (225.12)	−951.48 to −67.45	0.024	—	—	—	—	—	—	−547.78 (182.88)	−906.88 to −188.68	0.003
Random effects															
σ^2	3316914515			3296008643			2318487081			2185719447			2160933097		
τ_{00}	421268007.11			425496685.28			176721646.59			135804553.3			130112385.09		
ICC	0.11			0.11			0.07			0.06			0.06		
Marginal R^2	0.17			0.17			0.44			0.48			0.49		

Note: $N_1 = 682$. $N_2 = 18$. CI = 95% confidence interval.

TABLE 5b | Study 2: Model analyses, excluding mixed gender groups.

	Provider annual salary ($)													
	Model 6			Model 7			Model 8			Model 9			Model 10		
Predictors	***B* (SE)**	**CI**	***p***	***B* (SE)**	**CI**	***p***	***B* (SE)**	**CI**	***p***	***B* (SE)**	**CI**	***p***	***B* (SE)**	**CI**	***p***
Intercept	122569.11 (11903.95)	99042.79–146095.44	<0.001	115961.97 (11960.41)	92322.70–139601.24	<0.001	87015.07 (15924.01)	55532.45–118497.69	<0.001	92124.77 (22534.81)	47566.62–136682.93	<0.001	102718.66 (22392.19)	58439.65–146997.67	<0.001
Years since degree	—	—	—	—	—	—	662.58 (676.24)	−674.38 to 1999.54	0.329	650.29 (664.71)	−664.03 to 1964.62	0.33	463.09 (643.17)	−808.74 to 1734.92	0.473
Full time equivalent	—	—	—	—	—	—	81078.60 (15930.53)	49583.09–112574.11	<0.001	68903.63 (16373.92)	36527.41–101279.85	<0.001	68706.02 (15789.09)	37484.17–99927.86	<0.001
Age	—	—	—	—	—	—	1353.07 (706.14)	−43.01 to 2749.15	0.057	1234.15 (696.10)	−142.26 to 2610.55	0.078	1459.48 (675.07)	124.57–2794.39	0.032
Race	—	—	—	—	—	—	2399.58 (10356.35)	−18075.49 to 22874.64	0.817	−2099.16 (10310.01)	−22485.18 to 18286.86	0.839	−565.75 (9966.33)	−20273.48 to 19141.98	0.955
Patient satisfaction	—	—	—	—	—	—	−10091.24 (36974.81)	−83192.42 to 63009.94	0.785	12144.10 (37572.42)	−62147.98 to 86436.17	0.747	35751.85 (36948.76)	−37311.77 to 108815.47	0.335
Group size	—	—	—	—	—	—	5136.55 (1867.59)	1444.23–8828.87	0.007	4362.79 (2344.17)	−272.35 to 8997.93	0.065	5805.67 (2316.13)	1225.67 –10385.66	0.013
Medical degree	—	—	—	—	—	—	109050.50 (9159.65)	90941.39–127159.62	<0.001	92083.31 (10924.93)	70481.40–113685.22	<0.001	86740.20 (10732.83)	65516.77–107963.62	<0.001
Family medicine specialty	—	—	—	—	—	—	−31311.56 (15410.29)	−61778.53 to −844.59	0.044	−29383.63 (15096.04)	−59233.07 to 465.82	0.054	−38510.38 (15397.08)	−68957.04 to −8063.72	0.014
Group membership	20542.00 (12814.61)	−4784.09 to 45868.09	0.111	24200.04 (12614.01)	−731.03 to 49131.12	0.057	—	—	—	6138.29 (13128.19)	−19820.12 to 32096.71	0.641	2929.99 (12829.58)	−22439.62 to 28299.61	0.82
Gender	−1104.66 (108.91)	−1319.91 to −889.42	<0.001	−604.19 (202.23)	−1003.90 to −204.49	0.003	—	—	—	−308.37 (121.14)	−547.90 to −68.85	0.012	70.63 (167.09)	−259.77 to 401.03	0.673
Group×Gender	—	—	—	−693.50 (237.85)	−1163.61 to −223.39	0.004	—	—	—	—	—	—	−621.25 (192.48)	−1001.86 to 240.64	0.002
Random effects															
σ^2	3339990512			3166543783			1934566008			1869153423			1728561922		
τ_{00}	444313142.6			469081581.9			452069155.93			406952403.69			511701591.2		
ICC	0.12			0.13			0.19			0.18			0.23		
Marginal R^2	0.43			0.46			0.64			0.66			0.68		

Note: $N_1 = 151$. $N_2 = 16$. CI = 95% Confidence Interval.

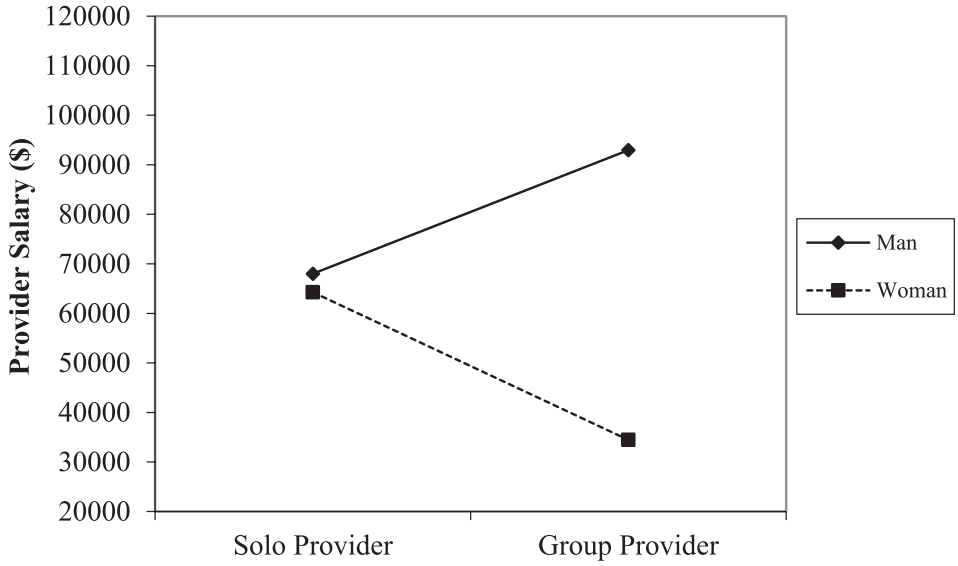

FIGURE 2 | Study 2: Interaction plot (from Model 5 of Table 5a).

TABLE 6 | Study 2: Cell means comparison.

Condition	Provider salary
Solo men	$86,044[a,b]
Group men	$111,004[a,d]
Solo women	$82,315
Group women	$52,497[b,d]

Note: $N_1 = 682$. $N_2 = 18$.
[a]Significant difference ($p < 0.05$) from group women.
[b]Significant difference ($p < 0.01$) from group men.
[d]Significant difference ($p < 0.05$) from solo men.

(Table 6) illustrate the practical impact: men in all-men groups earned the most ($111,004) while women in all-women groups earned the least ($52,497).

Studies 1 and 2 provide support for our hypothesized interaction. Despite the smaller sample size in Study 2 when excluding mixed-gender groups ($N = 151$), the interaction remained robust.[4] The consistency of results across Studies 1 and 2, and despite different contexts, sample sizes, and measurement approaches, provides convergent evidence for our hypothesized effect (Campbell and Fiske 1959; Shadish et al. 2002).

Having found evidence that group gender composition moderates the relationship between group membership and pay across two field studies, we next conducted a controlled experiment to test whether perceptions of intergroup social competition enhancement strategy explain these pay differences.

8 | Study 3

We designed Study 3 to test our proposed mediator, perceived intergroup social competition enhancement strategy. We first developed a scale based on Chattopadhyay et al.'s (2004) social competition enhancement strategy construct and conducted a stimulus sampling pre-study to test our target manipulations, confirm the realism of our venture capital experimental context, and establish convergent and discriminant validity for our scale through a confirmatory factor analysis (Campbell and Fiske 1959).[5] We then conducted an experiment to test whether perceived intergroup social competition enhancement strategy varies by gender and group membership.

8.1 | Sample and Experimental Design

We recruited 240 participants through Amazon mTurk. We examined the data for careless response patterns (Huang et al. 2012), excluding 14 participants who did not complete the entire survey or who failed an instructed response item (IRI; e.g., "Regardless of what your favorite fruit is, the correct answer is 'orange'"). Our final sample size was 226 (48% women, 89% White, $M_{age} = 35.6$ years). Participants were randomly assigned to one of four conditions in a 2 (gender: man vs. woman investor) × 2 (group membership: solo vs. group) between-subjects design. Participants viewed a picture of a focal investor with a brief description of the investor making an investment decision. All conditions described the investor as choosing to invest in a particular startup because it had "high scores and increased the racial and gender balance" of the target's investment portfolio. Participants then rated their perceptions of the investor's gender, group membership, and likely use of intergroup social competition enhancement strategy.

In the solo condition, participants viewed one headshot (the focal investor). In the group condition, participants viewed five demographically similar headshots (all White men or all White women) and were told the center photo was the focal investor. The focal investor photo was identical across solo and group conditions within each gender. A stimulus validation pre-study ($N = 209$) confirmed that the male and female focal investor photos did not differ significantly on age, professional presentation,

or stereotypical traits (all p's > 0.05). Full details are available in the online supplement.

8.2 | Measures

8.2.1 | Group Membership

Participants rated an investor working solo or in a group (0 = solo investor; 1 = group investor).

8.2.2 | Gender

Participants rated one man or one woman investor (0 = man investor; 1 = woman investor). To experimentally control for race, only white investors were used.

8.2.3 | Perceived Intergroup Social Competition Enhancement Strategy

We measured perceived intergroup social competition enhancement strategy using a five-item scale adapted from Chattopadhyay et al.'s (2004) social competition construct. Participants rated the likelihood (1 = *not at all likely*, 5 = *extremely likely*) that the investor would: "Discuss unfair treatment in venture capitalism with others," "Post to social media about discrimination in venture capitalism," "Advocate for federal legislation to promote equality in venture capitalism," "Write an op-ed to complain about discrimination in venture capitalism," and "Conduct news interviews about unfair treatment in venture capitalism." Cronbach's $\alpha = 0.90$. Full scale development details, including exploratory and confirmatory factor analyses establishing convergent and discriminant validity, are available in appendix A on OSF page.

8.3 | Results and Discussion

8.3.1 | Manipulation Checks

Participants rated the focal investor's gender and group membership on five-point Likert scales (1 = *strongly disagree*, 5 = *strongly agree*). Both manipulations were effective: participants assigned to the woman investor rated her as a woman ($M = 4.43$) significantly more than those assigned to the man investor ($M = 2.58$), $F(1, 224) = 124.70$, $p < 0.001$. Similarly, participants assigned to the group investor rated them as working in a group ($M = 4.39$) significantly more than those assigned to the solo investor ($M = 3.41$), $F(1, 224) = 52.42$, $p < 0.001$.

8.3.2 | Hypothesis Testing

Table 7 reports the means, standard deviations, and correlations. Table 8 reports hierarchical moderated regression results. Hypothesis 2 predicts that gender moderates the effect of group membership on perceived intergroup social competition enhancement strategy, with women in all-women groups rated higher than men in all-men groups. Model 2 of Table 8 shows a significant Group Membership × Gender interaction, $\beta = 0.14$, $t(219) = 2.06$, $p = 0.040$. Figure 3 depicts this interaction. Simple slopes reveal that group membership increases perceived intergroup social competition enhancement strategy perceptions for women ($b = 0.34$, $t(219) = 2.84$, $p = 0.005$) but not for men ($b = -0.10$, $t(219) = -0.08$, $p = 0.933$). The marginal cell means are reported in Table 9, again showing significant differences between the man and woman group investors, but not the man and woman solo investors. Thus, Hypothesis 2 is supported, such that gender moderates the effect of group membership on perceived intergroup social competition enhancement strategy, with women in all-women groups perceived as more socially competitive than men in all-men groups.

We next conducted Study 4 to test whether perceptions of intergroup social competition enhancement strategy mediated the interaction of gender and group membership on compensation expectations.

9 | Study 4

To replicate findings from Studies 1–3 while testing all three hypotheses simultaneously, we designed and preregistered[6] an experiment where participants rated athletes on perceived intergroup social competition enhancement strategy and compensation expectations. We manipulated athlete group membership and gender, measuring all constructs in our conceptual model. Figure 4 depicts the full conceptual model.

TABLE 7 | Study 3: Variable means, standard deviations and correlations.

		M	SD	1	2	3	4	5
1.	PISC enhancement strategy	3.87	0.64	—	—	—	—	—
2.	Gender	0.50	0.50	0.12	—	—	—	—
3.	Group membership	0.51	0.50	0.05	−0.01	—	—	—
4.	Participant woman	0.48	0.54	0.04	0.04	0.07	—	—
5.	Participant non-White	0.11	0.31	−0.12	0.10	−0.02	0.08	—
6.	Participant age	35.56	11.26	0.03	−0.09	0.01	0.03	−0.07

Note: $N = 226$. None of these correlations are significant at $p < 0.05$. Gender (0 = man, 1 = woman). Group membership (0 = solo, 1 = group).
Abbreviation: PISC, perceived intergroup social competition.

TABLE 8 | Study 3: Model analyses.

	Perceived intergroup social competition					
	Model 1			Model 2		
	β	*t*	*p*	*β*	*t*	*p*
Participant woman	0.05	0.67	0.503	0.05	0.81	0.419
Participant non-White	−0.13	−1.92	0.056	−0.13	−1.97	0.050
Participant age	0.03	0.51	0.612	0.04	0.61	0.546
Gender	0.13	1.95	0.053	0.13	1.93	0.055
Group membership	0.05	0.68	0.498	0.04	0.67	0.503
Group × Gender				0.14	2.06	0.040
R^2		0.04			0.05	
Change R^2	—	—	—		0.02, $p = 0.040$	

Note: $N = 226$. Gender (0 = man, 1 = woman). Group membership (0 = solo, 1 = group).

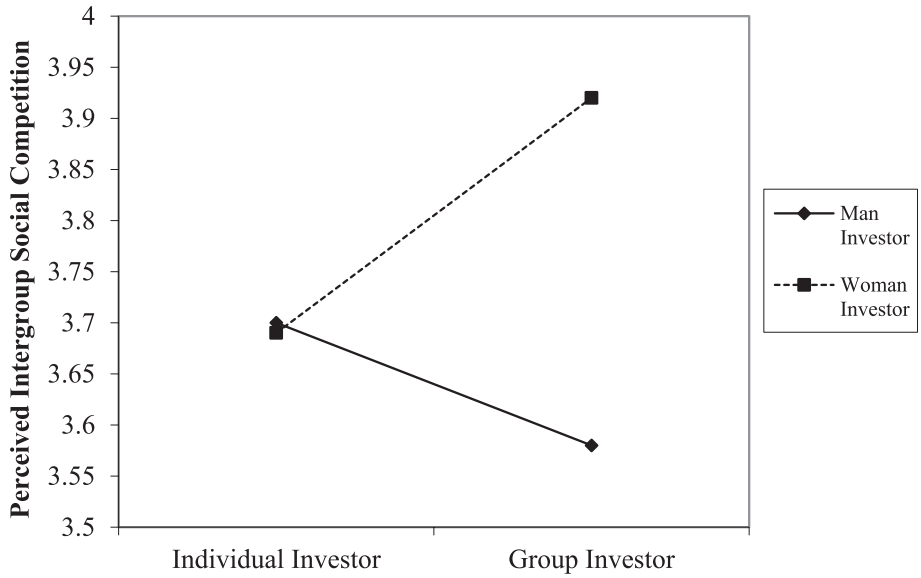

FIGURE 3 | Study 3: Interaction plot (from Model 2 of Table 8).

TABLE 9 | Study 3: Cell means comparison.

Condition	Perceived intergroup social competition
Solo men	3.85[a]
Group men	3.73[a]
Solo women	3.84[a]
Group women	4.07[b]

Note: $N = 226$.
[a]Significant difference ($p < 0.05$) from Group women.
[b]Significant difference ($p < 0.05$) from Group men.

9.1 | Sample and Experimental Design

We conducted an online experiment via Prolific. To ensure data quality, we tracked IP addresses and used Qualtrics security features to prevent multiple submissions and fraudulent responses (Aguinis et al. 2021). We examined data for careless responding using an instructed response item (identical to Study 3) and identified participants averaging under 2 s per item (Huang et al. 2012). We recruited 225 participants; after excluding 12 participants exhibiting careless response patterns, the final sample was 213 (45% women, 68% White, $M_{age} = 38.2$ years).

Participants were randomly assigned to one of four conditions in a 2 (gender: man vs. woman athlete) × 2 (group membership: solo vs. group athlete) between-subjects design. To help disguise our hypotheses, each participant rated two athletes in their assigned condition competing in different sports (e.g., participants in the group woman condition rated a basketball player and a soccer player).[7] Solo sports included golf, snowboarding, and skiing. Group sports included football, soccer, and basketball.[8] Participants viewed each athlete's photo, read a two-sentence career biography, and rated the athlete on group membership, perceived intergroup social competition enhancement strategy, and expected compensation. A stimulus validation pre-study

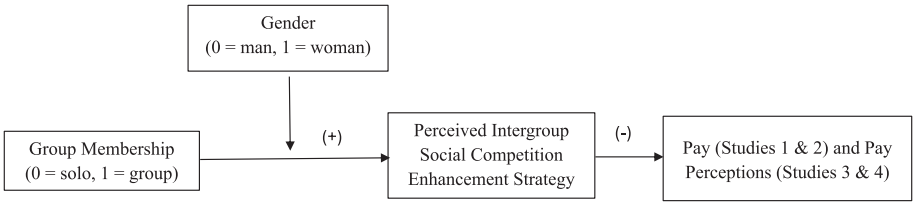

FIGURE 4 | Conceptual model.

confirmed no significant differences between athlete photos in attractiveness, skill level, age, or social status.

9.2 | Measures

9.2.1 | Group Membership

Participants rated either solo or group athletes (0 = solo athlete, 1 = group athlete).

9.2.2 | Gender

Participants rated either man or woman athletes (0 = man; 1 = woman). As in Study 3, we used only White athletes to experimentally control for race.

9.2.3 | Perceived Intergroup Social Competition Enhancement Strategy

We adapted the five-item Study 3 scale for the sports context (e.g., "How likely would this *athlete*..."). Cronbach's $\alpha = 0.96$.

9.2.4 | Athlete Compensation

Participants rated expected total yearly compensation (including endorsements, prize money, and salary) on a 10-point scale (1 = \$0–\$500,000, 5 = \$5–\$10 million, 10 = over \$50 million).

9.2.5 | Controls

We controlled for *athlete presentation order* (0 = first, 1 = second), *participant gender* (0 = man, 1 = woman), *participant race* (0 = White, 1 = non-White), *participant age*, and *social dominance orientation* (Pratto et al. 1994). To rule out stereotype-based biases (Fiske et al. 2018), we measured *perceived athlete warmth* (warm, likable, cooperative; 1 = *not at all*, 5 = *extremely*; $\alpha = 0.83$) and *perceived athlete competence* (dominant, forceful, assertive; 1 = *not at all*, 5 = *extremely*; $\alpha = 0.77$). To ensure results could not be attributed to knowledge of actual athlete compensation, we measured *women's sports knowledge*, *men's sports knowledge* (1 = *not at all*, 5 = *very much*), and number of professional *athletes followed on social media* (1 = *none*, 5 = *more than 10*). We also measured *athlete popularity*, asking participants to rate each athlete on the following items: "How possible do you think it is for this athlete to achieve high levels of popularity" (1 = *extremely not possible*, 7 = *extremely possible*).

9.3 | Analytical Approach

Because each participant rated two athletes each, we used multilevel modeling to analyze the data. All models used random intercepts with grand-mean centered continuous predictors.

9.4 | Results and Discussion

9.4.1 | Manipulation Checks

Manipulation checks suggested that our gender and group membership manipulations were successful. Participants assigned to woman athletes perceived them as women ($M = 4.85$) whereas those assigned to man athletes did not ($M = 1.14$), $F(1, 424) = 8257.25$, $p < 0.001$. Participants assigned to group athletes perceived them as group athletes ($M = 4.79$) whereas those assigned to solo athletes did not ($M = 1.39$), $F(1, 424) = 2852.79$, $p < 0.001$.

9.4.2 | Hypotheses Testing

Table 10 reports means, standard deviations, and correlations. Tables 11a (without controls) and 11b (with controls) present hierarchical multilevel model results.

Hypothesis 1 predicts that gender moderates the effect of group membership on pay. Supporting this prediction, the Group Membership × Gender interaction was negative and significant: $b = -1.95$, $t(209) = -3.46$, $p < 0.001$ (Model 4, Table 11a) and $b = -1.55$, $t(202) = -2.84$, $p = 0.005$ (Model 6, Table 11b). Figure 5 plots this interaction: the simple slope is positive for men ($b = 1.53$, $t(202) = 3.87$, $p < 0.001$) and negative for women ($b = -0.02$, $t(202) = -0.04$, $p = 0.966$). The significant interaction coefficient indicates these slopes are significantly different from each other, showing that the effect of group membership on pay is more positive for men than women. is supported.

Hypothesis 2 predicts that gender moderates the effect of group membership on perceived intergroup social competition enhancement strategy, with women in all-women groups perceived as more socially competitive than men in all men-groups. Supporting this prediction, the Group Membership × Gender interaction significantly predicted perceived intergroup

TABLE 10 | Study 4: Variable means, standard deviations and between-participant correlations.

		M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Level 1 variables																	
1	Athlete compensation	4.11	2.34	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2	PISC enhancement strategy	4.01	1.77	−0.05	—	—	—	—	—	—	—	—	—	—	—	—	—
3	Gender	0.52	0.50	−0.27**	0.51***	—	—	—	—	—	—	—	—	—	—	—	—
4	Group membership	0.49	0.50	0.21	0.09	0.01	—	—	—	—	—	—	—	—	—	—	—
5	Athlete order	1.50	0.50	0.00	0.00	0.00	0.00	—	—	—	—	—	—	—	—	—	—
6	Athlete popularity	6.15	1.02	0.22	−0.16	−0.39***	0.08	0.00	—	—	—	—	—	—	—	—	—
7	Athlete warmth	3.66	0.77	0.12	0.09	−0.03	−0.08	0.00	0.28**	—	—	—	—	—	—	—	—
8	Athlete competence	3.75	0.76	0.25*	−0.05	−0.09	0.31***	0.00	0.32***	0.11	—	—	—	—	—	—	—
Level 2 (participant) variables																	
9	Participant gender	1.49	0.54	−0.21	0.08	−0.06	−0.05	0.00	0.05	0.09	−0.05	—	—	—	—	—	—
10	Participant race	4.00	4.60	−0.16	−0.04	0.04	−0.10	0.00	0.11	0.09	−0.02	0.08	—	—	—	—	—
11	Participant age	38.15	13.00	0.05	−0.04	−0.03	0.03	0.00	0.13	0.07	0.28**	0.02	0.22	—	—	—	—
12	Athletes followed on social media	2.08	1.31	0.11	0.07	0.01	−0.01	0.00	−0.05	0.07	0.00	−0.09	−0.10	−0.10	—	—	—
13	Women's sport knowledge	2.06	0.87	0.18	0.17	0.06	−0.02	0.00	−0.03	0.21	0.07	−0.04	−0.06	0.17	0.39***	—	—
14	Men's sport knowledge	2.95	1.18	0.24*	0.03	0.02	−0.05	0.00	−0.06	−0.01	0.06	−0.42***	−0.17	0.05	0.45***	0.54***	—
15	Social dominance orientation	2.38	1.47	0.08	0.02	0.12	−0.01	0.00	−0.10	−0.18	0.14	−0.15	−0.12	−0.01	0.14	0.00	0.26*

Note: $N_1 = 426$. $N_2 = 213$.
Abbreviation: PISC, perceived intergroup social competition.
***$p < 0.001$.
**$p < 0.01$.
*$p < 0.05$.

TABLE 11a | Study 4: Model analyses without controls.

	Perceived intergroup social competition enhancement Strategy						Athlete compensation								
	Model 1			Model 2			Model 3			Model 4			Model 5		
Predictors	***B*** **(SE)**	**CI**	***p***	***B*** **(SE)**	**CI**	***p***	***B*** **(SE)**	**CI**	***p***	***B*** **(SE)**	**CI**	***p***	***B*** **(SE)**	**CI**	***p***
Intercept	−0.99 (0.17)	−1.32 to −0.66	< 0.001	−0.68 (0.19)	−1.05 t o −0.31	< 0.001	4.28 (0.25)	3.79–4.78	< 0.001	3.79 (0.28)	3.23–4.35	< 0.001	3.92 (0.28)	3.36–4.48	< 0.001
Gender	1.64 (0.19)	1.26–2.02	< 0.001	1.04 (0.03)	0.52–1.55	< 0.001	−1.21 (0.29)	−1.78 to −0.64	< 0.001	−0.26 (0.40)	−1.04 to 0.52	0.517	−0.45 (0.40)	−1.23 to 0.33	0.257
Group	0.29 (0.19)	−0.09 to 0.67	0.131	−0.35 (0.27)	−0.88 to 0.18	0.199	0.93 (0.29)	0.36–1.50	0.002	1.94 (0.41)	1.14–2.74	< 0.001	2.00 (0.40)	1.21–2.79	< 0.001
Group × gender		—	—	1.23 (0.37)	0.50–1.97	0.001	—	—	—	−1.95 (0.57)	−3.07 to −0.84	0.001	−2.18 (0.56)	−3.30 to −1.07	< 0.001
PISC enhancement strategy		—	—	—	—	—	—	—	—	—	—	—	0.19 (0.50)	0.08–0.29	0.001
Random effects															
σ^2	1.03			1.03			0.95			0.95			0.92		
τ_{00}	1.44			1.35			4.00			3.78			3.71		
ICC	0.58			0.57			0.81			0.80			0.80		
R^2	0.22			0.25			0.11			0.15			0.16		

Note: $N_1 = 426$. $N_2 = 213$. CI = 95% confidence Interval. Gender (0 = man, 1 = woman). Group Membership (0 = solo, 1 = group).
Abbreviation: PISC, perceived intergroup social competition.

TABLE 11b | Study 4: Model analyses with all controls.

	Perceived intergroup social competition enhancement strategy								
	Model 1			Model 2			Model 3		
Predictors	***B* (SE)**	**CI**	***p***	***B* (SE)**	**CI**	***p***	**B (SE)**	**CI**	***p***
Intercept	−1.08 (0.68)	−2.42 to 0.26	0.115	−2.21 (0.62)	−3.44 to −0.99	<0.001	−1.79 (0.63)	−3.03 to −0.56	0.005
Level 2 (participant) predictors									
Gender	0.23 (0.24)	−0.23 to 0.70	0.328	0.39 (0.20)	−0.02 to 0.79	0.061	0.29 (0.20)	−0.12 to 0.69	0.162
Race	−0.05 (0.25)	−0.54 to 0.45	0.855	−0.16 (0.22)	−0.59 to 0.27	0.456	−0.19 (0.21)	−0.61 to 0.23	0.378
Age	−0.01 (0.01)	−0.03 to 0.01	0.258	−0.01 (0.01)	−0.02 to 0.01	0.366	−0.01 (0.01)	−0.02 to 0.01	0.505
Athletes followed on social media	0.00 (0.10)	−0.19 to 0.20	0.975	0.02 (0.09)	−0.14 to 0.19	0.786	0.04 (0.08)	−0.12 to 0.21	0.604
Women's sport knowledge	0.40 (0.17)	0.07–0.73	0.019	0.26 (0.14)	−0.02 to 0.55	0.072	0.24 (0.14)	−0.04 to 0.52	0.092
Men's sport knowledge	−0.09 (0.14)	−0.36 to 0.18	0.509	−0.00 (0.12)	−0.24 to 0.23	0.967	−0.02 (0.12)	−0.25 to 0.22	0.892
Athlete order	0.35 (0.10)	0.16–0.54	<0.001	0.36 (0.10)	0.17–0.55	<0.001	0.36 (0.10)	0.17–0.55	<0.001
Social dominance orientation	0.04 (0.08)	−0.12 to 0.20	0.63	−0.04 (0.07)	−0.18 to 0.10	0.57	−0.04 (0.07)	−0.18 to 0.09	0.545
Level 1 predictors									
Athlete popularity	−0.06 (0.08)	−0.22 to 0.11	0.508	0.08 (0.08)	−0.07 to 0.24	0.294	0.10 (0.08)	−0.06 to 0.25	0.234
Athlete warmth	0.00 (0.10)	−0.20 to 0.20	0.979	−0.03 (0.10)	−0.22 to 0.16	0.793	−0.02 (0.10)	−0.21 to 0.17	0.807
Athlete competence	0.17 (0.11)	−0.05 to 0.38	0.135	0.12 (0.11)	−0.08 to 0.33	0.239	0.12 (0.10)	−0.08 to 0.33	0.235
Gender	—	—	—	1.73 (0.20)	1.33–2.12	<0.001	1.17 (0.27)	0.64–1.70	<0.001
Group membership	—	—	—	0.24 (0.20)	−0.15 to 0.63	0.224	−0.36 (0.28)	−0.92 to 0.19	0.196
Group × Gender	—	—	—	—	—	—	1.15 (0.38)	0.39–1.90	0.003
Random effects									
σ^2	0.97			0.96			0.96		
τ_{00}	2.13			1.46			1.38		
ICC	0.69			0.60			0.59		
R^2	0.05			0.26			0.28		

(Continues)

TABLE 11b | (Continued)

	Athlete compensation											
	Model 4			Model 5			Model 6			Model 7		
	B (SE)	CI	*p*	*B* (SE)	CI	*p*	*B* (SE)	CI	*p*	*B* (SE)	CI	*p*
Intercept	4.22 (0.86)	2.53–5.91	< 0.001	4.19 (0.86)	2.48–5.89	< 0.001	3.62 (0.87)	1.90–5.34	< 0.001	3.87 (0.87)	2.15–5.59	< 0.001
Level 2 (participant) predictors												
Gender	−0.68 (0.30)	−1.28 to −0.09	0.024	−0.70 (0.29)	−1.27 to −0.12	0.017	−0.56 (0.29)	−1.14 to 0.01	0.053	−0.60 (0.29)	−1.17 to −0.04	0.037
Race	−0.73 (0.32)	−1.36 to −0.11	0.022	−0.57 (0.31)	−1.17 to 0.04	0.068	−0.53 (0.30)	−1.13 to 0.07	0.081	−0.51 (0.30)	−1.10 to 0.09	0.095
Age	0.00 (0.01)	−0.02 to 0.02	0.876	−0.00 (0.01)	−0.02 to 0.02	0.907	−0.00 (0.01)	−0.03 to 0.02	0.72	−0.00 (0.01)	−0.02 to 0.02	0.779
Athletes followed on social media	0.01 (0.13)	−0.24 to 0.26	0.95	−0.01 (0.12)	−0.25 to 0.23	0.921	−0.04 (0.12)	−0.28 to 0.20	0.741	−0.05 (0.12)	−0.28 to 0.19	0.7
Women's sport knowledge	0.24 (0.21)	−0.18 to 0.66	0.256	0.31 (0.21)	−0.10 to 0.71	0.135	0.34 (0.20)	−0.06 to 0.73	0.099	0.30 (0.20)	−0.10 to 0.70	0.136
Men's sport knowledge	0.17 (0.18)	−0.17 to 0.52	0.328	0.17 (0.17)	−0.16 to 0.51	0.312	0.19 (0.17)	−0.14 to 0.52	0.263	0.19 (0.17)	−0.14 to 0.52	0.253
Athlete order	0.13 (0.08)	−0.03 to 0.30	0.12	0.12 (0.08)	−0.04 to 0.29	0.144	0.12 (0.08)	−0.04 to 0.29	0.147	0.07 (0.09)	−0.10 to 0.24	0.409
Social dominance orientation	0.05 (0.10)	−0.15 to 0.25	0.626	0.10 (0.10)	−0.09 to 0.30	0.306	0.10 (0.10)	−0.09 to 0.30	0.284	0.11 (0.10)	−0.08 to 0.30	0.25
Level 1 predictors												
Athlete popularity	0.49 (0.08)	0.34–0.65	< 0.001	0.44 (0.08)	0.28–0.60	< 0.001	0.43 (0.08)	0.27–0.59	< 0.001	0.42 (0.08)	0.26–0.58	< 0.001
Athlete warmth	0.30 (0.10)	0.11–0.49	0.002	0.31 (0.10)	0.12–0.50	0.001	0.31 (0.10)	0.13–0.50	0.001	0.32 (0.09)	0.14–0.51	0.001
Athlete competence	0.33 (0.11)	0.12–0.55	0.002	0.30 (0.11)	0.08–0.51	0.007	0.29 (0.11)	0.08–0.51	0.007	0.27 (0.11)	0.05–0.48	0.014

(Continues)

TABLE 11b | (Continued)

	Athlete compensation											
	Model 4			Model 5			Model 6			Model 7		
	B **(SE)**	**CI**	***p***	***B*** **(SE)**	**CI**	***p***	***B*** **(SE)**	**CI**	***p***	***B*** **(SE)**	**CI**	***p***
Gender	—	—	—	−0.97 (0.28)	−1.52 to −0.41	0.001	−0.21 (0.38)	−0.97 to 0.54	0.577	−0.38 (0.39)	−1.14 to 0.38	0.325
Group membership	—	—	—	0.72 (0.28)	0.17–1.27	0.011	1.54 (0.40)	0.75–2.32	<0.001	1.59 (0.40)	0.81–2.37	<0.001
Group×Gender	—	—	—	—	—	—	−1.55 (0.55)	−2.63 to −0.48	0.005	−1.72 (0.55)	−2.79 to −0.64	0.002
PISC enhancement strategy	—	—	—	—	—	—	—	—	—	0.14 (0.05)	0.04–0.24	0.006
σ^2		0.73			0.73			0.73			0.72	
τ_{00}		3.88			3.57			3.43			3.38	
ICC		0.84			0.83			0.82			0.82	
R^2		0.18			0.26			0.28			0.29	

Note: Study 4: Model analyses with all controls, continued. $N_1 = 426$. $N_2 = 213$. CI = 95% Confidence interval. Gender (0 = man, 1 = woman). Group membership (0 = solo, 1 = group).
Abbreviation: PISC, perceived intergroup social competition.

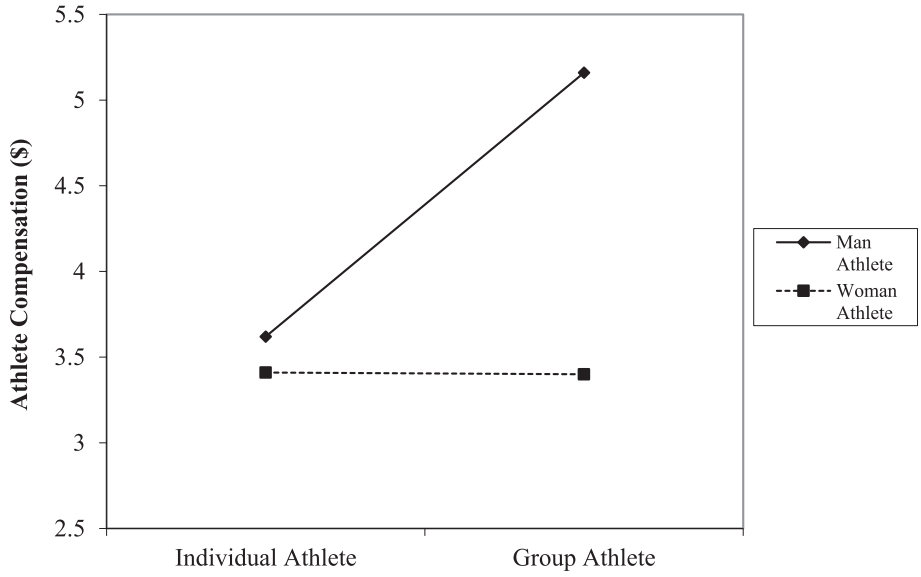

FIGURE 5 | Study 4: Interaction plot (from Model 6 of Table 11b).

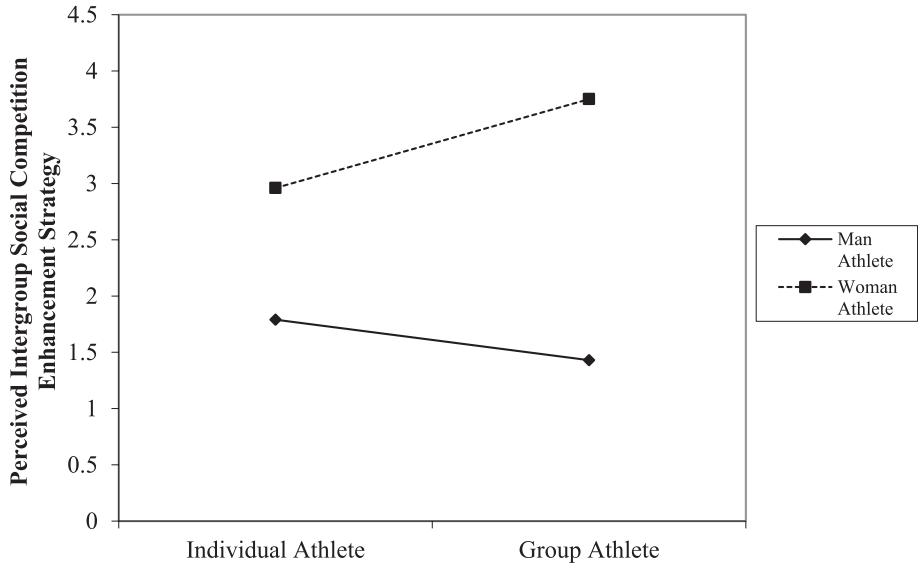

FIGURE 6 | Study 4: Interaction plot (from Model 3 of Table 11b).

social competition enhancement strategy: $b = 1.23$, $t(209) = 3.29$, $p = 0.001$ (Model 2, Table 11a) and $b = 1.15$, $t(202) = 2.99$, $p = 0.003$ (Model 3, Table 11b). Figure 6 illustrates this effect: group membership is negatively and non-significantly related to perceived intergroup social competition enhancement strategy for men ($b = -0.36$, $t(202) = -1.29$, $p = 0.567$) but positively and significantly related for women ($b = 0.78$, $t(202) = 2.96$, $p = 0.018$). is supported.

Hypothesis 3 predicts that perceived intergroup social competition enhancement strategy mediates the gender moderated effect of group membership on compensation. The Group Membership × Gender interaction on athlete compensation remained significant when including perceived intergroup social competition enhancement ($b = -2.18$, $t(209) = -3.87$, $p < 0.001$ in Model 5, Table 11a; $b = -1.72$, $t(202) = -3.14$, $p = 0.002$ in Model 7, Table 11b), as did the coefficient for perceived intergroup social competition enhancement strategy ($b = 0.19$, $t(212) = 3.38$, $p = 0.001$ in Model 5, Table 11a; $b = 0.14$, $t(208) = 2.75$, $p = 0.006$ in Model 7, Table 11b). We also tested whether measurement order impacted results that is, whether measuring perceived intergroup social competition enhancement strategy first primed participants' athlete compensation ratings, or vice versa. The results showed no significant differences based on measurement order. Our results support, showing that higher perceived intergroup social competition enhancement strategy predicts lower expected compensation and lower perceived intergroup social competition enhancement strategy predicts higher expected compensation. Table 12 presents marginal means: women in all-women groups were rated highest in perceived intergroup social competition enhancement strategy and lowest in athlete compensation, while men in all-men groups were rated lowest in perceived intergroup social competition enhancement strategy and highest in athlete compensation.

TABLE 12 | Study 4: Cell means comparison.

	Means	
Condition	**Perceived intergroup social competition**	**Athlete compensation**
Solo men	3.33[a,c]	4.06[b]
Group men	2.96[a,c]	5.65[a,c,d]
Solo women	4.50[a,b,d]	3.76[b]
Group women	5.28[b,c,d]	3.55[b]

Note: $N_1 = 426$. $N_2 = 213$.
[a]Significant difference ($p < 0.05$) from Group women.
[b]Significant difference ($p < 0.05$) from Group men.
[c]Significant difference ($p < 0.05$) from Solo women.
[d]Significant difference ($p < 0.05$) from Solo men.

9.4.3 | Moderated Mediation

Bootstrap analysis with 1000 bootstrap samples using the boot package in R version 4.3 (Canty and Ripley 2025; Davison and Hinkley 1997) revealed a significant moderated mediation index: the indirect effect of Group Membership × Gender on athlete compensation through perceived intergroup social competition enhancement strategy was significant ($b = 0.19$, $p = 0.038$, 95% CI [0.01, 0.38]), supporting Hypothesis 3.

9.4.4 | Robustness Checks

We tested several alternative explanations for our findings. First, we examined whether agentic traits (competence, assertiveness, dominance, forcefulness) could explain the group-level gender pay gap, but found no significant Gender × Group Membership effects on any of these variables. Second, we tested whether popularity explained the compounded pay gap. While gender predicted popularity, the Group Membership × Gender interaction did not, indicating that popularity alone cannot explain why gender pay gaps widen in group contexts. Third, we confirmed that none of these alternative constructs predicted perceived intergroup social competition enhancement strategy ratings, and that participant gender did not moderate results. These findings strengthen confidence that perceived intergroup social competition enhancement strategy represents a distinct mechanism beyond agency or popularity.

10 | General Discussion

This research was sparked by observing that all-men sports teams and bands earn substantially more than all-women teams, even though gender pay gaps are narrower for solo athletes and artists. Building on theory regarding group status enhancement strategies (Chattopadhyay et al. 2004), we proposed and found that working in same-gender groups increases perceptions that women engage in intergroup social competition, but not men. These differential perceptions lead to divergent pay outcomes. Across two field studies and two experiments, we found consistent support for our model: women in all-women groups receive lower pay than women working solo, while men in all-men groups receive higher pay than men working solo. This interaction compounds gender pay gaps at the group level, with all-men groups receiving the highest pay and all-women groups receiving the lowest. Importantly, this pattern emerged even when performance was controlled by design (Studies 1, 3–4) or statistically controlled (Study 2). In Study 2, women actually demonstrated higher objective performance, as evidenced by the positive correlation between percent women and patient satisfaction ($r = 0.22$). Yet despite superior performance ratings, women did not reap the pay benefits that their male colleagues enjoyed from working in same-gender groups. Instead, all-women groups were perceived as more socially competitive and received lower pay evaluations.

10.1 | Theoretical Contributions

Our primary contribution is uncovering a previously undocumented gender bias: women in same-gender work groups are prevented from reaping group-based advantages that men enjoy. Prior research has documented penalties related to women's leadership roles, career progression, work attribution, and evaluations (e.g., Burgess and Borgida 1999; Heilman 2001; Rudman and Glick 2001), and research on mixed-gender groups shows women receive less credit than male collaborators (Heilman and Haynes 2005; Sarsons et al. 2021). We extend this work by demonstrating that same-gender grouping creates divergent outcomes: it amplifies advantages for men while creating new disadvantages for women. This asymmetry helps explain persistent gender disparities in pay. Economic theory suggests market mechanisms should eliminate irrational pay disparities (Blau and Kahn 2017), yet women still earn approximately 20% less than men globally (United Nations 2022), and unfortunately this gender pay gap is once again on the rise (Liu 2025). Our results suggest that bias against women's groups contributes to these disparities by preventing women from translating collective presence into pay advantages the way men do.

Perhaps an equally important contribution is identifying a novel mechanism that compounds gender pay disparities at the group level. Existing theories including status characteristics theory (Berger et al. 1972; Ridgeway 2001), inequity framing (Phillips et al. 2022), devaluation of women's work (Acker 1990; Reskin and Roos 1990), gender stereotypes (Clarke 2020), and credit-sharing models (Heilman and Haynes 2005; Ross et al. 2022) explain why women are viewed less favorably than men at the individual level. However, none explain why all-women groups are viewed less favorably than solo women within the same context, while the opposite occurs for men. Through perceived intergroup social competition enhancement strategy, we identify a mechanism that explains widening gender disparities between same-gender workgroups. Specifically, women in all-women groups are denied legitimacy benefits of same-gender grouping through high perceived social competition. The consistency of our findings across varied contexts (i.e., professional sports, healthcare, venture capital, and experimental vignettes) strengthens confidence in this mechanism.

Another theoretical innovation of our model and findings is integrating the perceived intergroup social competition enhancement strategy construct into gender bias research, moving

beyond individual-level stereotype explanations. While stereotype research documents increased bias against agentic women and rewards for agentic men (e.g., Preston et al. 2024), we argue that perceptions of status-challenging behavior may operate independently of gender stereotype adherence. Stereotypes vary substantially by demographic group and change over time (Livingston et al. 2012; Rosette et al. 2018), but status hierarchies and threat perceptions may be more stable. We build on Chattopadhyay et al.'s (2004) framework by demonstrating that perceived social competition, regardless of actual behavior, produces workplace penalties. Prior research identifies motivations for intergroup social competition (e.g., Barnes et al. 2015; Ghosh et al. 2024; Mavin 2008) but rarely examines outcomes. We show that being perceived as engaging in social competition results in significant pay inequities, and that same-gender group composition shapes these perceptions.

Our findings also offer insight into why efforts toward pay transparency, algorithmic fairness, and structural reform often fail to eliminate gender pay gaps (Kallus et al. 2022; Lyons and Zhang 2023; Sharkey et al. 2022). If evaluators systematically perceive all-women groups as threatening and socially competitive, structural changes that make gender visible (e.g., diversity initiatives, all-women leadership teams) may inadvertently trigger the very biases they aim to reduce. This suggests that reducing gender pay gaps requires addressing not just structural barriers but also the psychological mechanisms through which group composition shapes threat perceptions and legitimacy judgments.

10.2 | Limitations and Future Directions

Although our studies provide consistent support for our hypotheses, two considerations offer helpful guidance for future research. First, we measured perceived intergroup social competition rather than directly observing socially competitive behaviors. We recognize that this may raise questions about whether actual behavior would show similar patterns. Yet classic work in organizational behavior suggests that perceptions themselves often shape evaluations and decisions more strongly than objective behavior does (Livingston 1969; Nisbett and Wilson 1977). Understanding how people perceive same-gender groups is therefore essential because these perceptions, accurate or not, carry real consequences for compensation decisions. This approach also creates opportunities for future research. Scholars could directly compare perceptions with measurable forms of social competition, such as contesting evaluations, expressing pay concerns, or protesting inequitable treatment. It may also be that perceived social competition helps set in motion the very pay inequities that later motivate actual competitive behavior, creating a recursive cycle. Following Pfeffer and Fong's (2005) idea of self-fulfilling management theories, future work could examine when socially competitive perceptions imposed on women in same-gender groups foster real pay inequities that then motivate enacted competitive behaviors, revealing how perceptions may gradually shape reality.

A second consideration concerns the contexts we examined. The striking pay disparities between all-men and all-women athletic teams initially motivated this program of research, and athletics provides an ideal context for studying highly sensitive issues involving demographics, status, and pay (Ertug and Castellucci 2013; Grijalva et al. 2020; Trevor et al. 2012). We acknowledge that athletics may represent a somewhat narrow context and that men's and women's sports rarely compete directly. Importantly, this indirect competition likely made our test more conservative, and, if anything, it may underestimate the strength of the relationship between perceived threat and pay outcomes. Despite this, we still found strong evidence supporting the model. For example, we replicated the effect in a sample of medical providers who typically work in mixed-gender teams, suggesting that the mechanism is not dependent on the unique structure of sports. We also observed consistent patterns among ratings of venture capital investors evaluating entrepreneurial teams. Together, these findings provide cautious confidence that the underlying psychological process is not bound to one context, even as we recognize that additional settings would strengthen this conclusion further.

These considerations highlight several promising directions for future research. We noted our predictions apply to male-dominated contexts, which characterize all our samples: women represent approximately 39% of professional athletes globally (IOC 2025; Zerunyan 2017; Studies 1 and 4), approximately 38% of medical providers nationally (Fiorillo 2025; Study 2), and about 12% of investing partners at US venture capital firms (Kersten and Athanasia 2022; Study 3). S. We acknowledge that our effects may vary in more gender-egalitarian workplaces (Goffee and Jones 1996), female-predominant occupations (Joshi and Roh 2009; Williams 1992), collectivist cultural contexts where group harmony is valued over competitive individualism (Gelfand et al. 2007), or contexts where men and women compete more directly for the same promotions and opportunities (Quinn and Rohrbaugh 1981). While we do not know whether effects will be stronger or weaker in female-dominated contexts such as nursing (Williams 1992), we theorize that in any context where women's groups are perceived as socially competitive, they will be evaluated as deserving lower pay.

Our samples primarily included White participants, so we urge future researchers to explore how intersectional identities may amplify or attenuate our documented effects. Our findings show that all-women groups are perceived as more socially competitive than all-men groups (Chattopadhyay et al. 2004; Tajfel and Turner 1986). However, intersectionality theory suggests these dynamics are unlikely to operate along gender alone (Crenshaw 2013; May 2015). Intersectional identities, and particularly the intersection of gender with race, nationality, and social class, may produce layered status expectations that intensify or attenuate perceived intergroup social competition enhancement strategy's influence on pay outcomes (Connor et al. 2023; Rosette et al. 2018; Thatcher et al. 2023). For example, low-class Black women may be viewed as particularly socially competitive because they simultaneously violate multiple status hierarchies (Martinez Dy et al. 2017; Phills 2024), resulting in compounded pay penalties. Conversely, high-class White men may be seen as especially non-threatening due to convergent gender, racial, and class advantages (Savage et al. 2013), enabling greater pay premiums when working in same-gender groups. We emphasize that examining how such intersectional asymmetries translate into differential pay penalties and rewards for members of

same-gender, same-race, or same-class groups represents a critical direction for future research.

We focused on perceived intergroup social competition enhancement strategy as an ingroup-protective mechanism (Chattopadhyay et al. 2004), but future work could incorporate devaluation, which reflects more hostile, outgroup-directed bias (Bareket and Fiske 2023; Glick and Fiske 1996; Jones et al. 2016). Examining both pathways may illuminate how subtle favoritism and overt devaluation jointly sustain gendered differences in workplace rewards. Finally, although we focused on pay because of its central importance, perceptions of same-gender groups likely affect other outcomes, including performance evaluations, promotability, reputation, and organizational visibility (Nyberg et al. 2018). Taken together, these considerations point to meaningful opportunities for extending and refining the theory, even as our multi-study evidence suggests that the core process is robust across several distinct contexts.

10.3 | Implications for Human Resource Management

Our findings offer several important implications for human resource management theories and practices, particularly around compensation, performance evaluation, and bias reduction (e.g., Castilla and Benard 2010; Hussain et al. 2023). Because bonuses and pay raises often fall within managerial discretion, understanding the subtle factors that shape these decisions is critical. Although women increasingly negotiate their starting salaries (Kray et al. 2024), women's long-term earnings continue to lag behind men's (Whaley et al. 2021). Our work highlights an underappreciated contributor to these gaps: the gender composition of employees' workgroups. If men receive higher rewards when working with men, and women receive lower rewards when working with women, these patterns can accumulate into widening gender pay disparities over time.

This mechanism sits alongside more familiar explanations for gendered wage gaps, including gendered career paths, family roles, social expectations, and discrimination (Roethlisberger et al. 2023). By showing how same-gender groups subtly influence pay outcomes, our research emphasizes the importance of considering all factors that shape gendered beliefs and behaviors at work (Briscoe and Joshi 2017). It also reinforces ongoing calls for stronger pay transparency (Wong et al. 2023). As organizations examine how salaries and bonuses are distributed, they should scrutinize whether workgroup gender composition influences who receives higher compensation.

Our results also suggest steps organizations can take to reduce these biases (Dobbin and Kalev 2016). In terms of training and development, managers, team leaders, and raters could benefit from programs that highlight common misconceptions about gendered group dynamics (Briscoe and Joshi 2017). A central message of such training would be that all-women groups are not necessarily more threatening to social norms, nor are all-men groups inherently less so. Raising awareness of these inaccurate assumptions may help managers interpret group behavior more accurately and reduce the likelihood that group composition inadvertently influences reward decisions. Additionally, organizations could conduct pay audits that incorporate group gender composition as a variable of interest and develop bias-sensitive or behaviorally anchored performance appraisal rating forms to identify and discount potentially biased ratings (Boswell and Boudreau 2002; DeNisi and Murphy 2017; Zitzewitz 2006).

Beyond traditional employment settings, our findings speak to gender disparities in entrepreneurship, investing, and creative fields. Women-only entrepreneurial teams receive disproportionately low levels of funding (Bittner and Lau 2021; Snellman and Solal 2023). If evaluators unconsciously view all-women groups as a collective abnormality, this may help explain persistent funding gaps. Investors and other gatekeepers should be aware that their judgments of team quality or potential may be influenced not only by participants' gender but also by the gender composition of the team. Women pursuing entrepreneurial ventures or creative collaborations should also be aware that working in all-women groups may trigger biases in contexts where such teams deviate from field norms.

Finally, organizations should recognize that employees, and especially women, often have limited control over the gender makeup of their workgroups. Team composition is shaped by organizational demographics, expertise, project needs, and scheduling constraints. Even when managers are attentive to gender equity, they may overlook the possibility that all-women teams may unintentionally be viewed less favorably than all-men teams. By identifying this potential blind spot, our research encourages organizations to consider how the structure of work itself can inadvertently reproduce gender inequality, and to take steps to counteract these effects.

11 | Conclusion

History has long cast women's collective action as suspect, but our findings demonstrate how these deep-seated assumptions continue to operate in contemporary workplaces. We find that same-gender work groups generate distinct perceptions of intergroup social competition enhancement strategy, and these perceptions compound gender pay gaps at the group level. All-men groups were viewed as legitimate and thus received higher pay; all-women groups did not receive this benefit, even when their performance matched or exceeded that of men's groups. By uncovering this perceptual pathway, our research highlights a subtle mechanism through which gendered status hierarchies are maintained. We hope these findings encourage further inquiry into how group composition shapes evaluative judgments and how organizations can address biases that emerge not only from who individuals are, but from whom they work with.

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Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

All data, analysis codes, and research materials are accessible on Open Science Framework: https://osf.io/7wvb9/?view_only=35272f97761643029b15c0d21ee429ca.

Endnotes

[1] Despite increased awareness of gender bias, status beliefs continue to fall along gendered lines, with men viewed as higher status than women, particularly in male-dominated contexts (Chattopadhyay et al. 2004; Clarke 2020; Rudman et al. 2012). Even in female-dominated fields, men experience promotion advantages and status benefits (Kronberg et al. 2024), but gendered status hierarchies are most pronounced in male-dominated settings where men establish worker prototypes (Cheryan and Markus 2020; Davies and Frink 2014; Minnotte and Minnotte 2021).

[2] Larger groups may be viewed as higher status when they provide safety and resource advantages (Heck et al. 2022; Stacey 1986), while smaller groups may be viewed as higher status when they signal exclusivity and elite membership (Cao and Banaji 2017).

[3] Group membership and group size were highly correlated ($r = 0.79$), which is expected due to definitional overlap: group membership is determined by group size greater than one. This correlation does not pose an interpretational problem because our focal hypothesis concerns group membership rather than group size per se, and our interaction results show the predicted pattern is specific to same-gender group membership rather than a linear function of group size. Multicollinearity is not a concern (all VIFs < 2), and results remain virtually identical when group size is removed from the models.

[4] Small samples typically reduce statistical power and lead to underestimation of regression coefficients (Peduzzi et al. 1996; Vittinghoff and McCulloch 2007), making this a conservative test.

[5] Full details of our stimulus validation pre-study, scale development, and confirmatory factor analysis are available in the online supplement. To develop and validate the perceived intergroup social competition enhancement strategy measure (appendix A in OSF), we followed (Colquitt et al. 2019) content validation guidelines. Appendix B in OSF contains the results of the stimulus validation pre-study ($N = 209$), which we conducted to validate the experiment context and ensure Study 3's target photographs were equivalent on age, professional presentation, and personality traits including likeability, competence, promotability, ambition, agreeableness, assertiveness, and cooperation (all p's > 0.05).

[6] Three deviations from the pre-registration occurred, all emerging during the review process. First, we changed the term "team" in the pre-registered hypothesis to "group" in the manuscript to better reflect our research contexts. Second, we refined "perceptions of social competition" to the more precise "perceived intergroup social competition enhancement strategy" to align with our theoretical framework. Third, we added "in male-dominated contexts" to the hypotheses for better contextual alignment.

[7] We statistically controlled for the order in which the athlete appeared to mitigate bias. To avoid a priming effect, we randomized item and athlete order, such that half the participants rated athlete compensation before perceived intergroup social competition enhancement strategy use, and half the participants rated perceived intergroup social competition enhancement strategy before athlete compensation.

[8] We chose the six sports based on three considerations. First, recognizability, as all are widely known and regularly featured in major media coverage, and each includes athletes ranked among the highest paid globally (Knight et al. 2022). Second, gender representation: taken together, these sports have female participation rates ($M = 30.1\%$) comparable to those in our Study 1 dataset ($M = 38.9\%$), helping ensure that the stimuli align with gender distributions typical of elite athletics. Third, we included both higher-SES sports (golf, skiing, snowboarding) and lower-SES sports (basketball, football, and soccer) so that no single social-class profile could drive the findings.

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