



“Barbie is a doctor, a lawyer, and so much more than that!”: perceiving gender inequalities is associated with higher professional aspirations

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Abstract

In recent years, Western societies have seen unprecedented attention to gender inequality and its repercussions for women and society as a whole. Amid this societal change, this research aims to study whether and how perceiving gender inequalities relates to women university students' investment in study and professional aspirations. Since inequalities between women and men unfold along different domains, we considered four dimensions of inequalities: workplace inequalities, domestic imbalance, sexual harassment, and gendered social expectations. Furthermore, we examined whether achievement-related contingencies of self-worth mediated the relationship between perceiving inequalities and students' career aspirations. Study 1, conducted in Italy ($N=418$), showed that perceiving gender inequalities had both direct and indirect positive associations with women's career aspirations. Study 2, conducted in Spain ($N=401$), extended these findings by additionally considering women students' self-reported academic effort. The key results, which align with expectations based on relative deprivation theory, suggest that perceiving systematic disadvantages for women motivates women students to invest more in their academic and professional pursuits, and this might represent an act of social change. Remarkably, domains often perceived as unrelated to the workplace, such as domestic imbalance, significantly influenced professional aspirations, emphasizing the pervasive influence of gender inequalities across multiple life contexts.

Keywords Gender equality · Self-worth · Higher education · Occupational aspirations · Educational aspirations

Introduction

Since its blockbuster debut in July 2023, the movie *Barbie* has shattered box office records (Dockterman, 2023). The movie is predominantly set in *Barbieland* – a woman-centric utopia where women occupy positions of power, and men play a very marginal societal role. Even though there are different opinions on whether or not it is a feminist film (Cox, 2023), *Barbie* does not spare explicit critiques of the patriarchy and has ushered in discussions on gender inequalities on a scale rarely witnessed before.

This cinematic success mirrors a broader societal shift towards acknowledging gender as a significant determinant of individuals' lives (Ipsos, 2024; Molto, 2022; Ryan, 2023). For instance, several global policy frameworks have been paying more and more attention to gender equality (e.g., UN 2030 Sustainable Development Goals; WHO, 2018). In the academic niche too, scientific articles mentioning gender in their title, abstract, or keywords have more than doubled in the last decade (Santonico et al., 2023). However, what is particularly remarkable is the increasing investment and heightened awareness of gender issues among laypeople. As an example, a recent survey conducted across France, the United States, Germany, and Great Britain revealed that nearly all participants identified cultural and historical drivers of persisting gender inequalities and reported widespread awareness of various gender issues (Focus 2030, 2023). Thus, one might wonder whether, in this landscape, the awareness of gender inequalities curbs women's career expectations or represents a driver for women to improve their condition.

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To address this issue, our research examined whether and how perceiving gender inequalities relates to women's professional aspirations and engagement in their studies. Although this research was exploratory, our theoretical reasoning was guided by the relative deprivation framework (e.g., Smith et al., 2012), which posits that disadvantaged group members who perceive that they are treated unjustly in comparison to another group they will be motivated to change the status quo. Since women experience various forms of disadvantage compared to men (EIGE, 2023), we considered the multiple contexts in which gender inequalities commonly occur, from the work environment to the domestic sphere, including sexual harassment against women and the different social expectations weighing on women's shoulders, but not on men's (Ciaffoni et al., 2025). Additionally, we investigated contingencies of self-worth – i.e., the domains on which individuals base their sense of self-worth and according to which they are driven to different goals (e.g., doing well academically; Crocker & Wolfe, 2001). More specifically, we explored whether achievement-related contingencies of self-worth mediated the relationship between perceived inequality and career aspirations. To address this aim, we run two correlational studies among women enrolled in universities in two European countries – Italy (Study 1) and Spain (Study 2) – that differ in their degree of gender equality and endorsement of traditional gender views (e.g., EIGE, 2023).

The inequality toolbox: how gender inequality reproduces itself

Differently from other minoritized groups that constitute a numerical minority too (e.g., sexual minorities, immigrants), women constitute slightly more than half of the global population and yet they undeniably face discrimination and differential treatment throughout the world (EIGE, 2023). Pratto and Walker (2004) observed that the subjugation of women by men has been a common denominator across all societies in time and geography and emphasized the central role of power imbalances in understanding gender inequalities. According to the authors, the perpetuation of this unequal system relies on four fundamental sources of gender-based power that operate at the individual, group, institutional, and structural levels. Such sources are (a) *force*, which includes acts like sexual assault and emotional abuse; (b) *resource control*, which involves mechanisms in social institutions that favor men over women; (c) *social obligations*, which focus on caregiving and domestic responsibilities, where women often bear greater burdens than men; and (d) *consensual ideologies*, which comprise beliefs and

expectations undermining women's positions relative to men, including norms, gender roles, and stereotypes.

While considering these four sources of gender-based power is essential for understanding how the unbalanced gender system reproduces itself, studying women's reactions to gender inequalities requires a shift in focus toward how women perceive their collective condition in comparison to men's (Jetten et al., 2017; Jetten & Peters, 2019; Mols & Jetten, 2017). Focusing on women's perceptions, we proposed a model that uncovers four main dimensions of perceived gender inequalities (Ciaffoni et al., 2025), which aligns with Pratto and Walker's (2004) fundamental sources of gender-based power. The first, named *harassment toward women*, includes both subtle and explicit unwanted sexual advances, solicitations for sexual favors, catcalling, and other behaviors that can demean, humiliate, or intimidate women (Brown et al., 2020). The second, named *workplace inequalities*, captures different barriers that women still face in the workplace and that prevent them from sustainably accessing and maintaining certain prestigious careers (Ryan et al., 2016). The third one, *domestic imbalance*, describes the unequal distribution of domestic responsibilities (Trappe et al., 2015). Last, the *social expectations* dimension captures those unspoken yet very influential gender inequalities, including but not limited to societal pressures to conform to beauty standards (Ramati-Ziber et al., 2020).

There is some evidence of the importance of adopting such a multi-context approach when addressing gender inequality issues (Schwartz-Salazar et al., 2024). In Ciaffoni et al. (2025), we showed that even though different dimensions of gender inequality are related, they have unique predictive power. For example, perceiving workplace inequality and harassment was associated with stronger anger and disdain, whereas the awareness of domestic imbalance was related to higher feelings of resignation. Moreover, we found that higher perceptions of social expectations, workplace inequality, and sexual harassment toward women were associated with more positive attitudes toward sexual and gender minorities but not toward other (more distant) minority groups (i.e., immigrants; Ciaffoni et al., 2024). Thus, such a comprehensive approach to gender inequality can help to better understand how the perception of women's disadvantage in different domains relates to women's educational paths and career pursuits.

What happens when people perceive inequality? The relative deprivation framework

Even if traditional views of men as breadwinners and women as caregivers are declining (Charlesworth & Banaji, 2022; Hentschel et al., 2019; Kosakowska-Berezecka et al., 2023), women's educational and career paths are still largely

affected by society's implicit and explicit gendered expectations (De Gioannis, 2023; Midgley et al., 2023). Various theoretical approaches have explained how the experience of gender inequalities may shape professional aspirations (Lent et al., 2018; Lent & Brown, 2019). While the stereotype threat model suggests that awareness of gender-based stereotypes can hinder women's career aspirations by undermining performance and engagement (Spencer et al., 2016; Steele & Aronson, 1995), an alternative perspective comes from the relative deprivation framework (Runciman, 1966). Although this framework and our research examine different aspects of perceived inequality – with our work focusing on the cognitive awareness of differential treatment, while relative deprivation focuses on the appraisal of injustice and the emotional reaction that comes with it – this model remains a valuable lens for understanding students' reactions to gender inequality.

This theory posits that group-based relative deprivation arises when individuals perceive an illegitimate disadvantage compared to a target group, accompanied by anger and resentment (Leviston et al., 2020; Moscatelli et al., 2014). This dissatisfaction with the ingroup's status fuels support for social change (Agostini & van Zomeren, 2021; Smith et al., 2012). Whilst most studies have investigated how perceiving inequality is associated with engagement in collective action (Grant et al., 2015; Smith et al., 2012), people may respond in other ways too. For instance, people can engage in self-improvement behaviors that tackle the unequal situation they face by increasing their individual future potential outcomes (Ellemers, 2002). Interestingly for this research, Zoogah (2010) found that employees who felt that they were not given the same opportunities and thus not reaping the same benefits as other employees were more likely to participate in developmental activities, such as workshops and training, to refine their professional role and improve their conditions in the future. Based on this evidence, one might, therefore, expect a positive relationship between women's perception of gender inequalities and their investment in education and careers.

Perceiving gender inequalities and contingencies of self-worth

A possible process through which perceiving gender inequalities might relate to women university students' professional aspirations is through variations in their contingencies of self-worth (Crocker et al., 2003a). Contingencies of self-worth are personal beliefs about what a person must do or must be to consider themselves valuable and worthy, and a person's self-esteem depends on whether they fail or succeed in these domains (Crocker, 2002). Hence,

contingencies of self-worth can have a serious influence on people's motivation, affect, and behavior (Crocker & Wolfe, 2001; Overstreet & Quinn, 2012). Since people are motivated to succeed in domains that are relevant to their self-worth, contingencies of self-worth contribute to regulating individuals' long-term and short-term goals (Crocker et al., 2003b; Crocker & Park, 2004).

Most research on predictors of investment in contingencies of self-worth has examined family, personal relationships, and other developmental factors (Crocker & Wolfe, 2001; Horberg & Chen, 2010; Kim & Williams, 2009; Wouters et al., 2013). Fewer studies have investigated how experiences of inequality shape contingencies of self-worth in minoritized groups (Blankenship & Stewart, 2022; Zeigler-Hill, 2007). For instance, Pachankis and Hatzenbuehler (2013) found that gay men with high internalized sexual stigma, anticipating rejection in the interpersonal domain, were more likely to overcompensate in domains related to their academic and professional development. In these domains, validation could – at least in principle – be obtained independently of other people's rejection of one's stigmatized identity. In this case, staking one's sense of self-worth to a domain that is distant from the experience of inequality is a way to cope with stigma, and protect one's self-esteem.

Previous research on university students identified seven possible contingencies of self-worth (e.g., physical appearance; being a virtual and moral person; Crocker et al., 2002). However, given our interest in the antecedents of university students' professional aspirations, the so-called achievement-related contingencies of self-worth (Crocker et al., 2003a; Pachankis & Hatzenbuehler, 2013) seem the most relevant. These are the contingency of academic competence (i.e., deriving self-esteem from the evaluations of one's academic results and skills) and that of competition (i.e., deriving self-esteem from succeeding in competition with others).

The present research

This research aimed to examine how perceiving gender inequalities was related to aspirations for their future job and educational investment among women university students, investigating the mediating role of achievement-related contingencies of self-worth (Crocker et al., 2003b). Specifically, Study 1 analyzed educational and professional aspirations in a sample of Italian students. Study 2, carried out in Spain, also considered academic effort as an additional outcome variable, providing a more proximal indicator of university students' engagement, reflecting students'

active engagement in their studies as a potential means of improving their future professional outcomes.

Although this research took an exploratory approach due to the partial fit between the theoretical framework and our objectives, based on the relative deprivation tradition (Smith et al., 2012), perceiving gender inequalities affecting women is associated with women's willingness to disrupt the status quo. Similarly, perceiving inequalities may also translate into stronger professional aspirations, as a way to challenge and eventually change the system (*relative deprivation hypothesis*). Concerning contingencies of self-worth, we expected them to mediate, at least partially, the relationship between perceiving gender inequalities and professional aspirations. Based on the relative deprivation hypothesis, perceiving gender inequalities should be associated with stronger contingencies of academic competence and competition. In turn, these contingencies should help explain why perceiving gender inequalities is linked to higher professional aspirations (*increased contingency of self-worth hypothesis*).

Study 1

To test the hypotheses, Study 1 collected the responses of women university students in Italy. Italy is one of the Western countries where patriarchy, intended as a social system where men hold more power and resources than women (Aloè et al., 2024; Nash, 2022), is still widespread and has severe repercussions in private and public spheres (Galizzi et al., 2023; Ostuni et al., 2022). As per the Gender Equality Index 2022, Italy ranks as the 13th most gender-equal country in the European Union (EIGE, 2023). Despite recent advancements in various areas, the country continues to face significant challenges, particularly in workplace inequalities, where it is ranked as the least gender-equal country in Europe. Additionally, the prevalence of sexual abuse remains high. According to the 2019 Italian National Institute of Statistics report, 31% of Italian women aged 16–70 have been subjected to physical and/or sexual violence while 43.6% were victims of sexual harassment or sexual blackmail at work. Such data are accompanied by resistant stereotypes about men's and women's appropriate behaviors and traditional views of gender roles: For instance, nearly one in three Italians believes that success at work is less important for women than for men, who are expected to provide for the family's economic needs while considered less suited to domestic responsibilities (ISTAT, 2019; Moscatelli et al., 2021).

Method

Both studies were approved by the Bioethical Committee of the University of Bologna. For both studies, we reported how we determined all data exclusions, sample size, manipulations, and measures, consistent with reporting standards for quantitative research (Appelbaum et al., 2018). The design and analyses for the two studies were not preregistered. The datasets and materials are available on OSF (https://osf.io/7u5hw/?view_only=a85b71593d4b4c6fb4e8705d49cb70de).

Participants

To establish the minimum sample size required for this and the following study, we followed Fritz and Mackinnon (2007) recommendations for complex mediation analyses, indicating 400 participants as the minimum sample size to detect small to medium effect sizes, given an alpha of 0.05 and a power of 0.80. Data was collected between May 2021 and October 2021.

Participants were all students enrolled in the University of Bologna, one of the largest universities in the North of Italy. The research was advertised on university campuses, both offline and online, as a study focused on women's experiences in society and at university. In the second phase, professors from underrepresented programs were contacted and asked to promote the study during their classes. Participation was completely voluntary; no compensation was granted. After providing informed consent, participants had to fill in a 15-minute online anonymous questionnaire on the Qualtrics platform.

We initially recruited 571 participants. Of these, 98 participants did not give their informed consent or left the questionnaire after reading it, and 42 participants left the questionnaire without answering all of the main variables for this study. Furthermore, we deleted cases from those participants who identified as men ($n = 8$) or had failed more than one attention check out of three spread throughout the questionnaire ($n = 5$). The final sample consisted of 418 university students (from 18 to 33 years old; $M_{age} = 22.53$, $SD = 2.95$). 412 identified as women (98.56%), whereas six were nonbinary students socialized as women. Most participants were Italian (93.06%), straight (76.08%), and currently enrolled in a bachelor's program (54.07%). Full demographic information is detailed in [Supplementary Materials](#).

Procedure and measures

After giving informed consent, participants were presented with measures of perceptions of gender inequalities, contingencies of self-worth, career aspirations, and some

demographic information, in this order. Except for the measure of perceived gender inequalities which was already validated in Italian, all other measures were back-translated from English. Responses to all measures were provided on a 7-point Likert scale (1 = *strongly disagree*, 7 = *strongly agree*). Perceptions of gender inequalities were measured with the 16 items of the Social Treatment and Experiences of Women (STEW) Scale (Ciaffoni et al., 2025). An example item is “When looking for a job, women are less likely to be hired than men.” All the subscales exhibited good reliability levels (domestic imbalance, with $\alpha = 0.75$, harassment towards women, with $\alpha = 0.70$, workplace inequalities, with $\alpha = 0.80$, and social expectations, with $\alpha = 0.74$).

The two achievement-related contingencies of self-worth we examined were measured with the corresponding 5-item subscales of the contingencies of self-worth scale (Crocker et al., 2003b). An example item for the academic competence contingency is “Doing well in my studies gives me a sense of self-respect” ($\alpha = 0.81$) and one for the competition contingency is “Knowing that I am better than others on a certain task increases my self-esteem” ($\alpha = 0.91$). Career aspirations were measured through the career aspiration scale (Gray & O’Brien, 2007), which included two subscales, namely leadership and achievement aspirations ($\alpha = 0.79$; example item: “I hope to become a leader in my field”, 6 items), and educational aspirations ($\alpha = 0.82$; “I want to receive specialized training in my professional area”, 2 items).

Results

To understand how perceptions of gender inequalities relate to contingencies of self-worth and professional aspirations, we first examined descriptive statistics and correlations among all study variables (Table 1). The four components of perceived gender inequalities were positively correlated. Contingencies of self-worth showed small but significant associations with gender inequality perceptions: the contingency of academic competence correlated positively with domestic imbalance, harassment toward women and

workplace inequalities, while the contingency of competition was linked to domestic imbalance. Leadership, achievement, and educational aspirations were positively correlated with the contingency of academic competence, with leadership and achievement aspirations also showing a moderate association with the contingency of competition.

We then conducted a path analysis with Mplus 8.3 (Muthén & Muthén, 2019) using the Maximum Likelihood (ML) estimator (Satorra & Bentler, 2001). Path analysis was chosen because it allows testing for multiple direct and indirect associations among variables while controlling for all variables within the model. Since we estimated a saturated model with observed variables, χ^2 , RMSEA, and SRMR values were all 0, and CFI and TLI values were 1. The four components of perceptions of gender inequalities were included as predictors and correlated (for a similar procedure, see Ciaffoni et al., 2024). The two achievement-related contingencies of self-worth of competition and academic competence were entered as mediators and correlated with each other. Finally, the two outcome variables, namely leadership and achievement aspirations and educational aspirations, were correlated with each other (see Fig. 1).

The direct effects from the path analysis are reported in Table 2, with significant paths also shown in Fig. 1. As presented, with respect to the relationships between perceptions of gender inequalities and the proposed mediators, harassment toward women and workplace inequalities were positively associated with the contingency of academic competence, whereas social expectations were negatively related to it. Domestic imbalance was positively linked to the contingency of competition.

Considering leadership and achievement aspirations as the outcome, of the four gender inequality components, only the social expectations component had a significant and positive direct association with it. The contingency of competition was also positively associated with leadership and achievement aspirations. The findings also showed a significant and positive indirect effect of domestic imbalance on leadership and achievement aspirations through the contingency of competition, with $\beta = 0.037$ (0.015), [0.006,

Table 1 Descriptive statistics and correlations among variables included in study 1

Variable	Mean	SD	1	2	3	4	5	6	7
1. Domestic imbalance	5.77	1.02							
2. Harassment toward women	6.45	0.63	0.39***						
3. Workplace inequalities	5.90	0.89	0.36***	0.60***					
4. Social expectations	5.33	1.06	0.36***	0.58***	0.56***				
5. CSW -Academic competence	5.61	0.98	0.10*	0.16**	0.17***	0.04			
6. CSW - Competition	4.71	1.38	0.15**	0.08	0.07	0.01	0.47***		
7. Leadership and achievement aspirations	5.35	1.00	0.07	0.07**	0.07	0.19***	0.20***	0.29***	
8. Educational aspirations	6.07	0.89	0.04	0.17***	0.13**	0.06	0.21***	0.08	0.26***

*** $p < .001$, ** $p < .01$, * $p < .05$

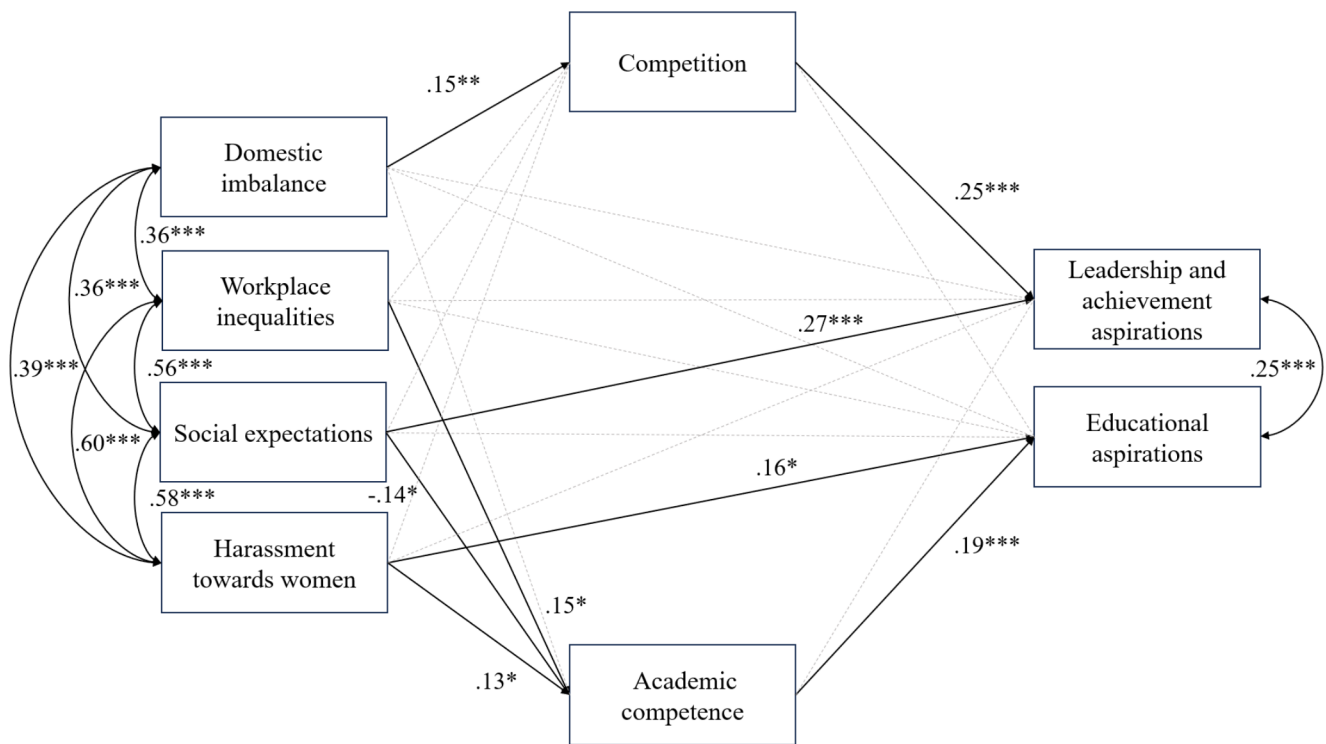


Fig. 1 Graphical representation of the model (Study 1). *Note.* Standardized coefficients; *** $p < .001$, ** $p < .01$, * $p < .05$. For clarity, the correlation between Competition and Academic competence ($r = .46, p < .001$) is not shown in the figure

Table 2 Direct associations between the observed variables in the model

	CSW – Academic competence	CSW – Competition	Leadership and achievement aspirations	Educational aspirations
	β (SE) [95% CI]	β (SE) [95% CI]	β (SE) [95% CI]	β (SE) [95% CI]
Domestic imbalance	0.042 (0.053) [- 0.062, 0.146]	0.145** (0.053) [0.041, 0.249]	- 0.028 (0.051) [- 0.128, 0.073]	- 0.033 (0.053) [- 0.137, 0.070]
Harassment toward women	0.132* (0.065) [0.006, 0.259]	0.067 (0.065) [- 0.062, 0.195]	- 0.065 (0.062) [- 0.187, 0.057]	0.162* (0.064) [0.037, 0.288]
Workplace inequalities	0.153* (0.063) [0.029, 0.277]	0.035 (0.064) [- 0.091, 0.161]	- 0.064 (0.061) [- 0.183, 0.056]	0.044 (0.063) [- 0.080, 0.168]
Social expectations	- 0.136* (0.062) [- 0.259, - 0.014]	- 0.104 (0.063) [- 0.227, 0.020]	0.265*** (0.059) [0.149, 0.381]	- 0.053 (0.062) [- 0.175, 0.069]
CSW – Academic competence			0.096 (0.052) [- 0.006, 0.199]	0.192*** (0.064) [0.087, 0.298]
CSW – Competition			0.253*** (0.051) [0.153, 0.353]	- 0.023 (- 054) [- 0.129, 0.083]

Standardized coefficients; *** $p < .001$, ** $p < .01$, * $p < .05$

0.067], and $p = .017$. The model explained 13.00% of the total variance.

As for educational aspirations, it had a direct association with harassment towards women. The contingency of academic competence was also positively associated with this outcome. Additionally, the indirect effect of workplace inequality on educational aspirations via the contingency of academic competence was significant, with $\beta = 0.029$

(0.015), [0.001, 0.058], and $p = .046$. The model accounted for 6.80% of the overall variance.

We also tested a model that included the dummy variable for STEM versus non-STEM students as a covariate, and the significance and direction of the effects remained largely consistent (see [Supplementary Materials](#)). The only significant association involving this variable was with educational aspirations, where STEM students displayed lower aspirations compared to non-STEM students.

Discussion

The results of Study 1 provided initial evidence of a positive relationship between perceiving gender inequalities and women's educational and professional aspirations. Overall, the more women university students perceived gender inequalities, the higher their leadership, achievement, and educational aspirations. All the perceived gender inequality dimensions seemed to play a role, through direct or indirect associations with the considered outcomes. Indeed, supporting the relative deprivation and the increasing contingencies of self-worth hypotheses, these findings suggest that being more perceptive of gender inequalities may lead women to attribute more importance to the domains of academic competence and competition and might foster higher expectations for one's future at work.

The subsequent study not only aimed to replicate these results in a distinct national context characterized by higher levels of gender equality (EIGE, 2023), but also extended the examination of the correlates of perceived gender inequalities by considering a more proximal indicator of young women's investment in their studies and professional projects, that is, perceived academic effort.

Study 2

Study 2 aimed to extend the previous findings and assess the associations between women's perception of gender inequalities, achievement-related contingencies of self-worth, and educational professional aspirations in Spain. Furthermore, we considered students' self-reported academic effort as an additional outcome variable, which, besides being likely to be related to educational and professional aspirations, can capture women's engagement in their studies rather than just tackling their expectations for a more distant professional career. By investigating academic effort as an outcome, we aimed to capture whether perceiving gender inequalities motivates students to invest more effort in their academic pursuits as a way to enhance their future career prospects.

Spain is less gender-inequal than Italy, as it is positioned as the 4th most gender-equal nation in the European Union, according to the Gender Equality Index 2023. Although the country has made progress across various gender equality indicators (EIGE, 2023), it still faces significant disparities in time allocation, particularly in care, domestic work, and social activities between women and men. Additionally, among European citizens, Spaniards are the most likely to view sexual harassment and violence against women as critical issues, with Spanish women reporting higher rates of sexual harassment than Italian women (Statista, 2020).

Method

Participants

Participants were women university students enrolled in various universities in Spain (mostly, the University of Valencia and the University of Barcelona). All measures were backtranslated into Spanish. Participation in the study was voluntary and involved filling in a 15-minute anonymous questionnaire. Data was collected between October 2021 and March 2022.

We initially recruited 563 participants. Of these, 8 participants did not give their informed consent, and 99 participants left the questionnaire without answering all of the main variables for this study. Furthermore, we deleted cases from those participants who identified as men ($n = 41$), did not disclose their gender ($n = 2$), or had failed more than one attention check out of three spread throughout the questionnaire ($n = 12$). The final sample was made up of 401 university students (from 18 to 32 years old; $M_{age} = 22.47$, $SD = 3.39$). The vast majority identified as women (99.50%), but we also kept two nonbinary individuals socialized as women. Most participants were Spanish (84.04%), straight (66.58%), and currently enrolled in a bachelor's program (64.34%). Full demographic information is available in [Supplementary material](#).

Procedure and measures

After providing their informed consent, participants were presented with the same measures as the previous study: perceptions of gender inequalities in the realm of domestic imbalance ($\alpha = 0.81$), harassment towards women ($\alpha = 0.86$), workplace inequalities ($\alpha = 0.84$) and social expectations ($\alpha = 0.79$), the contingency of academic competence ($\alpha = 0.76$) and competition ($\alpha = 0.82$), leadership and achievement aspirations ($\alpha = 0.75$) and educational aspirations ($\alpha = 0.78$). Additionally, they were asked about their perceived academic effort with the single item "How much effort do you put into your studies?" (1 = *Not at all*; 7 = *A great deal*) and some final demographic information.

Results

To understand the relationships among our variables of investigation, we first examined the correlations among study variables (see Table 3). The four domains of perceived gender inequalities were positively correlated with each other. Notably, both contingencies of academic competence and competition were positively correlated with domestic imbalance, harassment toward women, workplace inequality and social expectations. Leadership and

Table 3 Descriptive statistics and correlations among variables in study 2

Variable	Mean	SD	1	2	3	4	5	6	7	8
1. Domestic imbalance	5.78	1.16								
2. Harassment toward women	6.41	0.88	0.57***							
3. Workplace inequalities	5.47	1.17	0.53***	0.61***						
4. Social expectations	4.96	1.25	0.51***	0.55***	0.58***					
5. CSW -Academic competence	5.32	0.98	0.31***	0.30***	0.26***	0.24***				
6. CSW - competition	4.57	1.23	0.27***	0.23***	0.21***	0.21***	0.50***			
7. Leadership and achievement aspirations	4.90	1.09	0.08	0.18***	0.12*	0.12*	0.25***	0.18***		
8. Educational aspirations	5.66	1.30	0.21***	0.33***	0.17**	0.19***	0.30***	0.12*	0.51***	
9. Academic effort	5.18	1.18	0.15**	0.22***	0.16**	0.13*	0.30***	0.12*	0.27***	0.30***

*** $p < .001$, ** $p < .01$, * $p < .05$

Table 4 Direct associations between the observed variables in the model (Study 2)

	CSW – Academic Competence	CSW – Competition	Leadership and Achievement Aspirations	Educational Aspirations	Academic Effort
	β (SE) [95% CI]	β (SE) [95% CI]	β (SE) [95% CI]	β (SE) [95% CI]	β (SE) [95% CI]
Domestic Imbalance	0.173** (0.060) [0.055, 0.291]	0.174** (0.061) [0.053, 0.294]	-0.098 (0.063) [-0.221, 0.025]	0.002 (0.060) [-0.116, 0.120]	-0.006 (0.065) [-0.134, 0.121]
Harassment toward Women	0.148* (0.065) [0.021, 0.275]	0.084 (0.066) [-0.046, 0.214]	0.144* (0.067) [0.013, 0.275]	0.312*** (0.063) [0.189, 0.434]	0.132 (0.072) [-0.009, 0.274]
Workplace Inequalities	0.044 (0.065) [-0.085, 0.172]	0.026 (0.067) [-0.105, 0.157]	-0.006 (0.067) [-0.137, 0.125]	-0.081 (0.064) [-0.206, 0.045]	0.048 (0.070) [-0.090, 0.185]
Social Expectations	0.050 (0.062) [-0.071, 0.171]	0.061 (0.063) [-0.063, 0.185]	0.037 (0.063) [-0.088, 0.161]	0.015 (0.061) [-0.103, 0.134]	-0.018 (0.068) [-0.151, 0.115]
CSW – Academic Competence			0.196** (0.057) [0.085, 0.307]	0.256*** (0.054) [0.151, 0.361]	0.304*** (0.060) [0.188, 0.421]
CSW – Competition			0.065 (0.056) [-0.045, 0.175]	-0.068 (0.054) [-0.173, 0.037]	-0.078 (0.061) [-0.198, 0.043]

Standardized coefficients; * $p < .05$; ** $p < .01$; *** $p < .001$

achievement aspirations were positively associated with harassment toward women, workplace inequalities, social expectations, as well as academic competence and competition. Furthermore, educational aspirations were positively associated with domestic imbalance, harassment toward women, workplace inequalities, social expectations, as well as the contingencies of academic competence and competition. Similarly, academic effort was also positively associated with all four types of perceived gender inequalities and both achievement-related contingencies of self-worth.

Like in Study 1, we then tested a path model in which the four components of perceived gender inequalities were entered as correlated predictors, the two contingencies of self-worth as correlated mediators, and our three aspirations-related outcomes – namely, leadership and achievement aspirations, educational aspirations, and academic effort – as correlated dependent variables. Analyses were

conducted in Mplus 8.3 (Muthén & Muthén, 2019), and the model was fully saturated.

The full results of the path analysis are presented in Table 4, with significant direct effects also displayed in Fig. 2. As shown, perceived domestic imbalance was positively associated with the contingency of competition, while both domestic imbalance and harassment toward women were positively related to the contingency of academic competence.

Considering leadership and achievement aspirations, the findings showed positive associations with perceived harassment towards women and with the contingency of academic competence. Furthermore, a small and positive indirect effect of domestic imbalance on leadership and achievement aspirations through the contingency of academic competence emerged, with $\beta = 0.034$ (0.015), [0.004, 0.064], and $p = .028$. The model explained 8.20% of the total variance.

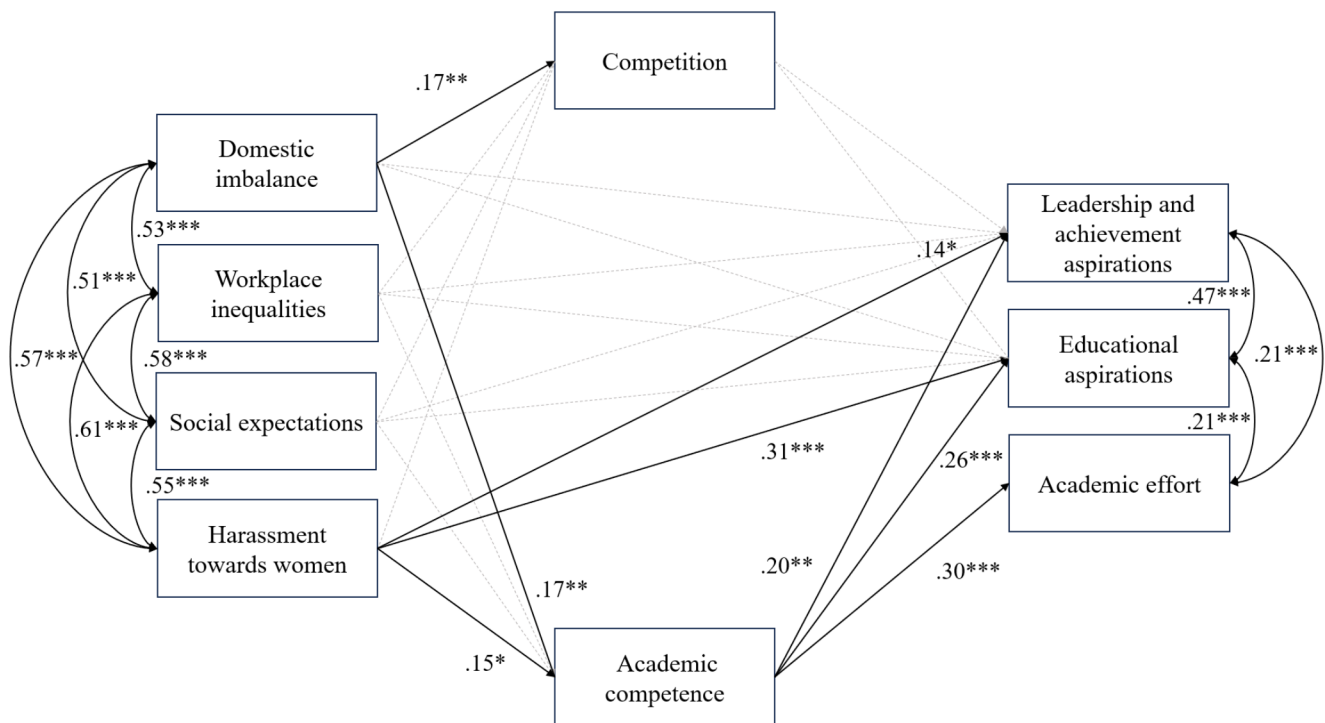


Fig. 2 Graphical representation of the model (Study 2). *Note.* Standardized coefficients; *** $p < .001$, ** $p < .01$, * $p < .05$. For clarity, the correlation between Competition and Academic competence ($r = .45$, $p < .001$) is not shown in the figure

As for educational aspirations, harassment towards women and the contingency of academic competence showed a significant and positive association with the outcome. The indirect link between domestic imbalance and educational aspirations through the contingency of academic competence was also significant, with $\beta = 0.044$ (0.018), [0.009, 0.080], and $p = .014$, as well as that between harassment towards women and educational aspirations through the contingency of academic competence, with $\beta = 0.038$ (0.018), [0.002, 0.074], and $p = .040$. The estimated model accounted for 16.20% of the overall variance.

Additionally, concerning academic effort, harassment towards women and the academic competence contingency of self-worth were positively associated with the outcome. The indirect association between domestic imbalance and academic effort through the contingency of academic competence was significant, with $\beta = 0.053$ (0.021), [0.011, 0.094], and $p = .013$. The indirect link between harassment towards women and academic effort through the contingency of academic competence was also significant, with $\beta = 0.045$ (0.022), [0.003, 0.087], and $p = .038$. The model accounted for 12.00% of the overall variance.

Finally, like in the previous study, we also tested a model that included the dummy variable for STEM versus non-STEM students as a covariate, and the results of the model were largely comparable (see [Supplementary Materials](#)).

Discussion

The findings of Study 2 align with those of Study 1, showing that the more women university students perceived gender inequalities, the higher their leadership, achievement, and educational aspirations. Specifically, they pointed out the critical role of sexual harassment and domestic imbalance over the other two gender inequality dimensions. Domestic imbalance was also associated with higher academic effort. Placing importance on doing well academically partly accounted for such relationships.

General discussion

Throughout two studies, we investigated how perceiving gender inequality in different contexts – workplace and domestic domains, sexual harassment, and social expectations – relates to educational investment and professional aspirations in women university students. We also tested whether shifts in achievement-related contingencies of self-worth account for such relationships. Using a correlational design, we explored whether awareness of gender inequalities is associated with women's pursuit of higher education and career ambitions. All in all, we found support for a positive relationship, so that being aware of gender inequalities was related to higher achievement, leadership, and

educational aspirations. These findings align with existing the relative deprivation tradition (Ellemers, 2002; Smith et al., 2012; Zoogah, 2010), and suggest that nurturing higher career aspirations may be a way to ultimately increase the representation of women in the workplace and hence challenge the unequal system from within.

In Study 1, conducted among women and six nonbinary students enrolled in an Italian university, perceiving gendered social expectations was associated with higher reliance on the academic-competence contingency of self-worth and was directly associated with leadership and achievement aspirations. Domestic imbalance was related to the same outcome indirectly through the contingency of competition. Being more aware of harassment towards women was associated with stronger educational aspirations – i.e., intentions to receive further training after starting a professional career – and so was the case for perceiving workplace inequalities through higher reliance on academic competence as a source of self-worth.

Study 2, conducted among women and two nonbinary students enrolled in Spanish universities, provided supporting evidence of positive relationships between perceptions of gender inequalities and educational and professional aspirations, and extended the findings of Study 1 by considering self-reported academic effort. However, a slightly different pattern emerged in this study. First, it can be noted that, whereas the contingency of competition played a significant role in predicting the outcomes in Italy, it was unrelated to career aspirations and self-reported academic effort in Spain. Considering the two countries through Hofstede's (1984) cultural dimensions could help understand the observed results. In particular, Italy has been described as a “decisive society” that highly values success and emphasizes competition from early childhood (Minkov & Kaasa, 2022; The Culture Factor Group, 2023). Spain is instead a “consensus-oriented society” that prioritizes quality of life and emphasizes harmony, considering strong competition as undesirable (Hofstede, 1984; Minkov & Kaasa, 2022; The Culture Factor Group, 2023).

With respect to the dimensions of perceived gender inequalities, a higher perception of harassment towards women was directly associated with achievement and leadership aspirations, which were instead indirectly associated with domestic imbalance through an increase in the academic competence contingency. Perceived harassment towards women also had a direct and indirect association (through the academic competence contingency) with educational aspirations. Domestic imbalance, too, was indirectly associated with educational aspirations through the academic competence contingency. Last, perceived domestic imbalance and harassment towards women were indirectly linked to perceived academic effort through the academic competence contingency. Thus, overall, the patterns found in Study

2 showed a more critical role played by perceived harassment towards women and domestic imbalance as compared to Study 1, where all the gender inequality dimensions had some significant associations with the considered outcomes, namely leadership, achievement, and education aspirations.

The stronger impact of harassment perceptions in Spain may stem from socio-cultural factors. After an event that shook Spanish society in 2016, issues of sexual freedom and sexual harassment have been largely debated both in and outside of parliament, and during the period in which the survey was conducted, a law popularly known as the “yes means yes” (Kingdom of Spain, 2022) was finally approved. This law regulates consent in personal relationships and represents an evolution in women's sexual freedoms, as well as a significant change in the legal classification of sexually non-consensual behaviors. The years leading to its approval were marked by intense debates and social mobilization (Rubio Martín et al., 2022), which made the topic of gender violence and harassment more salient and more discussed. Moreover, as mentioned, in recent years, Spanish women reported a higher prevalence of sexual harassment and violence compared to Italian women (e.g., Statista, 2020), testifying greater awareness of this issue in Spain. Hence, Spanish participants may have been more receptive to this type of inequality than the Italian participants.

The predominant role of domestic imbalance and the relatively lesser importance of workplace inequality and social expectations could also be due to cultural and societal differences between the two countries. As noted earlier, Spain is significantly more advanced than Italy in terms of gender equality at work and the representation of women in leadership roles (EIGE, 2023). For Spanish women, time allocation – along with educational attainment – is the most critical dimension of gender inequality, reflecting their greater involvement in care activities and reduced leisure time compared to men. In Italy, although being more unequal than in Spain, time allocation seems less critical relative to other inequality aspects, such as workplace disparities. Additionally, research suggests that Italians are more likely to endorse gendered beliefs and social expectations than the Spanish (e.g., Kosakowska-Berezecka et al., 2023). These differences in women's actual conditions and in the endorsement of gender stereotypes may help explain the distinct patterns observed in the two countries.

Theoretical implications

The key findings across both studies have important theoretical implications. Specifically, they contribute to the understanding of relative deprivation (Ellemers, 2002; Smith et al., 2012) by suggesting that perceiving systematic disadvantages may motivate women university students to

invest more in their education and aspire to higher career goals. This positive relationship between perceptions of gender inequalities and professional aspirations could be interpreted as a strategy of individual mobility, a form of negative social identity management (Mummendey et al., 1999). Alternatively, it may reflect a prospective form of social change, where perceiving gender inequality motivates young women to contribute to greater representation in the workplace by advancing their academic and professional careers. This interpretation aligns with recent calls to broaden the understanding of support for social change beyond traditional forms of collective action (Rosales & Langhout, 2020). While speculative, this perspective suggests that prioritizing academic achievement and career aspirations could represent a silent form of collective action rooted in the perception of women's collective condition. This interpretation is supported by recent qualitative findings from a comparative study across five European countries, which suggest that young women's interest in male-dominated careers may reflect a higher awareness of gender stereotypes and be seen as a progressive indicator in itself (Ingellis & Diaz Martinez, 2019). Further research is needed to explore factors such as identification with women or the perceived legitimacy of gender disadvantages.

Additionally, these findings offer an important perspective on the stereotype threat model (Spencer et al., 2016; Steele & Aronson, 1995), according to which the awareness of negative stereotypes about one's group negatively influences group members' performance within the stereotype-bound domain (Galdi et al., 2014; Manzi et al., 2021; Picho-Kiroga et al., 2021). While reflecting on gender inequalities likely heightened stereotype salience (see, for instance, Casad et al., 2019), our results – showing a positive link between perceived inequalities and aspirations – diverge from this model. One possible explanation is that rather than experiencing a paralyzing effect of stereotype threat, our participants may instead have been motivated by perceiving gender inequalities. Thus, an interesting question is under what conditions perceiving inequality leads to disengagement (e.g., Doolaard et al., 2022) versus motivation. One potential factor may be first-hand workplace experiences, which may shape whether awareness of inequality fosters aspirations or induces withdrawal. Future research should examine these relationships in a sample of older women who have been employed for some time, to assess how exposure to workplace inequality moderates the motivational effects observed in this study.

Our findings also provide insight into the role of achievement-related contingencies of self-worth in shaping professional aspirations. We found that perceiving greater gender inequalities was associated with stronger achievement-related contingencies, suggesting that academic and

professional success became central to participants' self-concept (Crocker, 2002). This mechanism may explain why perceived inequality was linked to heightened aspirations despite the recognition of structural barriers. However, while strong contingencies of self-worth can serve as motivational drivers, they can also pose risks to psychological well-being, particularly when based on unattainable standards (Crocker & Wolfe, 2001; Pachankis & Hatzenbuehler, 2013). In other words, the long-term consequences of these contingencies remain unclear – while they may initially support engagement, they could also become a source of distress if career advancement proves difficult due to systemic barriers. Future research should adopt a longitudinal perspective to explore whether achievement-related contingencies continue to act as a protective factor or, conversely, become a barrier to well-being as individuals navigate professional settings.

Additionally, this research brings some evidence of the usefulness of adopting a novel approach to gender inequality that considers the multiple contexts in which it occurs. In fact, based on purely economic logic, one could expect that perceived workplace inequality would play a predominant role in the relationship with women's professional aspirations, whereas other dimensions (e.g., sexual harassment) should be virtually irrelevant. However, our results describe a more complex situation, in which more than just economic gender inequality has specific associations with the considered outcomes, thus highlighting the importance of considering the multiple contexts of gender inequalities in gender research. These results are consistent with the integrated threat theory (Croucher, 2017; Stephan & Stephan, 2000), claiming the existence of multiple types of threats (e.g., symbolic threats) – besides the realistic threats that directly include menaces to the existence or power of the group – that play a role in intergroup dynamics.

Finally, these findings can add to models of career development (see Betz, 2023 for a review) and have implications for practitioners interested in training and vocational guidance of women. While there is evidence that more egalitarian gender role attitudes are associated with higher career aspirations and non-traditional career choices among women (Cunningham, 2008; Lietzmann & Frodermann, 2023), our research suggests that stimulating women's reflection about gender inequalities that occur along different domains might motivate them to invest more in their study and their professional achievements. Additionally, reflecting on gender inequalities affecting women might lead them to conceive the idea that succeeding in university and successfully competing with others should be central tenets of their self-concept, and motivate them to nurture higher career aspirations.

Limitations and future research

One of the main limitations of this research is that, due to its correlational nature, it does not allow us to understand the causality of the variables considered. Indeed, one might think that university students who have higher expectations for their future careers and invest more in their studies tend to take a more critical lens concerning the societal conditions of women. Thus, longitudinal studies are needed to support our interpretation of the results. For the same reason, taking an experimental approach and manipulating women's exposure to information about gender inequalities in their country would help establish causality. In particular, future research could experimentally manipulate and examine the distinct contributions of the different dimensions of inequality discussed in this article, namely workplace inequalities, domestic imbalance, harassment towards women and gendered social expectations, to determine whether and to what extent the results continue to align with relative deprivation theory. Such studies would provide valuable insight into the psychological processes underlying women's professional aspirations in the face of different components of gender inequalities.

Second, while assessing multiple domains of gender inequalities enabled this research to shed light on the different psychological reactions to different forms of inequality, considering women without an intersectional lens is a major limitation. Aiming to provide more representation and to reflect some of the natural diversity of the real world in our samples, in these studies we included women of different nationalities, sexual orientations, and fields of study, along with a few nonbinary individuals. These nonbinary participants – who consciously joined a study advertised for women – indicated to have been socialized as women, and hence they were both capable of answering questions about inequalities affecting women and likely to have internalized the effects of gender inequalities to an even stronger extent. For this reason, although their small number did not allow for multigroup analyses, we respected their inclusion as they chose to participate. However, future research should incorporate a more intersectional approach to this type of research.

Third, our research does not allow us to establish if women's higher professional aspirations in response to perceived gender inequality can represent a form of support for (collective) social change or if it is driven by different processes, such as an individual mobility strategy in response to social identity threat (Derks et al., 2006; Ellemers, 2002). To better understand whether the effects found in this research can be understood as a form of collective resistance or as a form of individual mobility enacted to distance the self from the ingroup, future research should then investigate the role of

identification with women and social identity threat in this process, particularly by employing an experimental design that could allow for testing the causal relationship of perceptions of gender inequalities on these outcomes.

In a related way, future research could more directly assess women's motivations behind their professional aspirations. Women's professional careers come with more obstacles than men's (Ryan, 2023), and some research uncovered how in the selection process, women, in comparison to men, are evaluated along multiple dimensions besides competence that is strictly required in the work context (Moscatelli et al., 2020; Prati et al., 2019). Therefore, it may be that women with more awareness of gender inequalities may anticipate that they will have to prove more qualities and stronger aspirations to become attractive candidates in the eyes of a future employer.

Furthermore, as mentioned, our participants might not have had any first-hand experience in the workplace. It would therefore be interesting to run similar studies with older women (e.g., women in the first years of their career) as well as to consider longer-term correlates of perceiving gender inequalities by collecting longitudinal evidence examining the impact that entering the workplace has on young women after university. Whereas contingencies of self-worth motivate people to behave in a certain way that ultimately maximizes their chances of succeeding in any given domain, the outcome is not a given, and, aside from their effort and aspirations, women will be likely to personally experience the very gender discrimination that they are aware of. If that happens, specifically because of the higher importance that women have put on the contingencies of competition and academic competence, perceiving a failure around these domains will have even more dramatic effects on their well-being and life satisfaction.

Additionally, this research has explored the effects of perceived gender inequalities on professional aspirations through the achievement-related contingencies of self-worth in two different social contexts, namely Italy and Spain. Despite the replicated findings, it would be important, in future research, to look deeper into the role of culture, for example by measuring country-level motivations towards achievement and professional success.

Conclusion

Barbie's journey from a symbol of unattainable perfection to an agent of feminist reflection mirrors the aspirations of many women navigating gendered realities. Taken together, these findings highlight the potential of perceiving gender inequalities to motivate university students to nurture higher professional aspirations and invest greater effort in their

academic pursuits. Thus, this research sheds light on the far-reaching impact of perceiving gender inequalities across multiple domains. It is not only the awareness of the barriers women face in the workplace but also the perception of domestic imbalance, harassment towards women and gendered social expectations that are linked to women's professional aspirations and academic engagement. Interestingly, while some of these domains are directly tied to the workplace, others, such as domestic imbalance, demonstrate profound effects on women's career trajectories despite their seemingly indirect connection to professional settings. These higher professional aspirations may represent more than individual ambition – a deeper call for social change that does not stop at having, for example, gender parity in leadership but a broader emancipation of women, allowing them the freedom to exert their agency across all domains.

The dual emphasis on both group-based perceptions of gender inequalities and the mediating role of contingencies of self-worth underscores the novel nature of this research, offering fresh insights and advancing the understanding of the psychological processes underlying women's professional aspirations in the face of gender inequalities. In particular, this research highlights the critical role of raising awareness about gender inequalities, including through accessible and influential platforms such as the Barbie movie. By prompting reflection on systemic gender dynamics, cultural touchstones like Barbie play a vital role in interventions promoting gender equality. Ultimately, Barbie's evolution reflects broader societal shifts in gender roles, highlighting the importance of ensuring that all individuals have equal opportunities to pursue their aspirations. Governments, policymakers, educators, and social scientists play a crucial role in addressing structural barriers and promoting a society where women can achieve their goals on equal footing with others.

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Authors contribution All authors contributed to the study conception and design. Material preparation and data analysis were performed by Stefano Ciaffoni and Silvia Moscatelli. Stefano Ciaffoni, Silvia Moscatelli, Anna Giulia Ingellis, and Josè Luis Condom Bosh were responsible for the collection of data for this study. The first draft of the manuscript was written by Stefano Ciaffoni and all authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

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Data availability The data that support the findings of this study are available in the Open Science Framework repository at https://osf.io/7u5hw/?view_only=a85b71593d4b4c6fb4e8705d49cb70de.

Declarations

Competing interests All authors certify that they have no affiliations with or involvement in any organization or entity with any financial interest or non-financial interest in the subject matter or materials discussed in this manuscript.

Ethics approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. The study was approved by the Bioethics Committee of the University of Bologna No. 170693/2021.

Consent to participate Informed consent was obtained from all individual participants included in the study.

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