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# Do women only apply when they are 100% qualified, whereas men already apply when they are 60% qualified?

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## Abstract

We tested the popular claim that women only apply for jobs when they are 100% qualified, whereas men apply already with as little as a 60% qualification fit. In Study 1, we presented a job advertisement and a CV with different levels of qualification fit. Participants were asked to imagine that the presented CV was their own and to indicate whether they would apply for the advertised job. No gender difference emerged in participants' application intentions, neither at 60% nor at 100% qualification fit. To enhance personal involvement, in Studies 2–4 we presented a job advertisement and asked participants to indicate whether they themselves would apply for the advertised job. Afterwards, participants indicated for every qualification criterion listed in the job advertisement whether they fulfilled it or not. We found a significant, but not robust gender difference in the predicted direction in the relationship between application intention and qualification fit. In addition, when asking how much women and men wanted to be prepared in application situations, women robustly indicated a higher desire for preparedness than men. Overall, our results indicate that for women psychological hurdles (i.e., desire for preparedness, fears and other gender-relevant indicators assessed) are higher in application situations than for men. However, these do not seem to translate reliably into differential application intentions in the experimental paradigms used in our studies. We discuss the theoretical and practical implications of our findings.

**KEYWORDS**
application intention, desire for preparedness, gender, gender difference, job advertisement, person-job fit, qualification fit

## 1 | INTRODUCTION

'You've probably heard of the following statistic: Men apply for a job when they meet only 60% of the qualifications, but women apply only if they meet 100% of them' (Mohr, 2014, p. 1). This statistic is mentioned in Sheryl Sandberg's book *Lean in* (Sandberg, 2015), to explain gender differences in career paths. After the book was published, this statistic received a lot of media coverage and has been cited extensively in online magazine and blog articles (e.g., Hannon, 2014; Rojas, 2021; Youn, 2019). However, journalists later discovered that this statistic was based on a speculative comment instead of quantitative data and that relevant quantitative data are still scarce (Hacohen & Nicks, 2019;

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Rice, 2014). We address this research gap by focusing on quantitative data. In the following, we report four studies testing whether women only apply when they are 100% qualified, whereas men already apply with as little as a 60% qualification fit.

Beyond enhancing theoretical knowledge about gender differences, studying these differences is important as consequences of gender differences in application intention can accumulate in the gender pay gap (Fluchtmann et al., 2022) and the gender leadership gap (Schmidt & Stettes, 2018) and can thereby cement or even exacerbate gender inequalities. But why is there reason to expect gender differences in application intentions based on fulfilling qualification criteria? Before we discuss possible theoretical reasons, we will first define qualification fit as this concept plays a crucial role here.

## 1.1 | Qualification fit

Qualification fit can be classified as a special case of person-job fit. Person-job fit is defined as the 'relationship between a person's characteristics and those of the job or tasks that are performed at work' (Kristof-Brown et al., 2005, p. 284) and is divided into two subtypes. The first subtype, *demands-abilities fit*, describes the fit between a person's individual abilities and job demands (e.g., a person has profound knowledge of statistics and part of the job is to interpret statistics; Kristof-Brown et al., 2005). Qualification fit is a special case of this subtype, referring to a specific job advertisement. The second subtype, *needs-supplies fit*, describes whether a person's individual needs are met by a job (e.g., having a challenging job, having flexible working hours; Kristof-Brown et al., 2005; Travaglianti et al., 2016).

In general, past research has shown that higher person-job fit is accompanied by higher application intentions (Brown, 2022; Van Hooft et al., 2006) and higher intentions to accept a job offer (Carless, 2005, Chapman et al., 2005). Based on these findings, we expect a positive relationship between qualification fit and application intention for both women and men. However, we also expect gender differences. In the following section, we present theoretical reasoning and empirical evidence suggesting that the positive relationship between qualification fit and application intention may be stronger for women than men and differentiate between qualification fit and needs-supplies fit.

## 1.2 | Why women may want to have a higher qualification fit than men when applying for a job

Gender differences in all areas mostly emerge as a complex interplay of different factors (Hyde, 2014). Accordingly, several factors may play a role for our hypothesis that women may want to have a higher qualification fit than men when applying for a job. First, looking at the female perspective, women may want 100% qualification fit because they learned that they need to overperform. This prediction is backed up by multiple research studies showing that women are being held to higher standards regarding job qualifications than men: In a study by Gorman and Kmec (2007), women and men were carefully matched on their job characteristics, individual qualifications and family responsibilities. Women reported their jobs as more effortful compared to men, hinting towards higher performance standards requiring women to show greater effort than men (Gorman & Kmec, 2007). Even more directly, Dutz et al. (2021) have shown that female applicants must show higher agency than male applicants to be perceived as an equally good fit for high-status jobs. Other research showed that female applicants were on average rated more negatively than male applicants (Kübler et al., 2018) and gender was a better predictor for job suitability than qualification (Swinstead, 2014). In a large meta-analysis comparing identically qualified male and female applicants across a broad range of occupations, Koch et al. (2015) found a slight preference for male applicants. All these studies suggest higher standards for women than men regarding job qualifications. We assume that women explicitly or implicitly know about these higher standards. In reaction to this, women possibly want to be more qualified than men when applying for a job.

Second, women may want to be more qualified than men due to their lower level of self-confidence or self-esteem. This was often suggested in online magazines and finally put to the test by Mohr (2014). In her survey, reported in *Harvard Business Review* (2014), Mohr asked why exactly people did not apply for a job when they decided not to apply because they did not meet the qualifications. A lack of confidence was the least common answer given (10% of women and 12% of men gave this answer). It is, however, debatable whether participants in this study were able or willing to give valid information of a factor such as low self-confidence driving the respective decisions. In general, gender differences in self-confidence seem to be highly dependent on context (Matlin, 2004), which makes it difficult to draw conclusions for the application context. Still, from a theoretical point of view, it seems to be plausible that lower self-esteem and lower confidence in one´s own skills can drive insecurity and a stronger want for higher qualification fit levels in women compared to men (see also Lee, 2018). Third, women are more rule-abiding than men in job contexts (Portillo & DeHart-Davis, 2009). Accordingly, Mohr (2014) found that women answered descriptively more often than men that they were following the guidelines when not applying for a job because they did not meet all qualification criteria.

Fourth, another important factor may be that – based on gender-specific expectations and stereotypes (Eagly & Wood, 2012; Ellemers, 2018) – men and women have learned that confidently applying for a job is associated with being male and behaving modestly in application situations is associated with being female (Brown, 2022). Gender stereotypes have been found to be very robust over time, this being especially true for prescriptive gender stereotypes on how women and men should behave (Eagly & Wood, 2012; Prentice & Carranza, 2002). Several lines of research show that how women and men behave compared to expected gender-related behaviours determines career success (Young & Hurlic, 2007). For example, agentic behaviour is expected from leaders which fits with male gender stereotypes leading to favourable evaluations for agentic men (Schein & Davidson, 1993; Sczesny & Stahlberg, 2002). Women on the other side encounter backlash (social and economic punishments) when showing high agency

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as this behaviour contradicts stereotypic expectation of being low in agency and high in communion (Rudman & Phelan, 2008; Williams & Tiedens, 2016). Furthermore, people include these stereotypes in their self-concepts and act accordingly to 'avoid the potential backlash associated with norm violations, even when it goes against their self-interest' (Smith & Huntoon, 2014, p. 448). This may result in women missing out on attractive jobs when not being qualified 100% because they do not want to be perceived as too assertive and lacking modesty.

### 1.3 | The role of possible gender differences in the desire for needs-supplies fit in women's striving for a higher qualification fit

Beyond gender differences in qualification (i.e., demands – abilities) fit preferences discussed so far, women may also differ from men in perceiving the implications of a 60% or 100% qualification fit for their *desired need-supplies fit* when getting the job. For example, one can argue that a 60% qualification fit implies a more insecure job situation or a job situation in which more effort has to be expended when trying to meet requirements. In contrast, striving for a 100% fit may limit possibilities for career advancement and personal growth. Consequently, if women and men differ in their needs regarding security, risk-taking or career motivation, gender differences in a preferred qualification fit can be expected.

Such relevant gender differences have been repeatedly supported by empirical evidence. For example, preliminary evidence supports the idea that women needed to deal with potential job-related fears more than men. When Mohr (2014) asked why exactly people did not apply for a job when they did not meet the qualifications, the largest descriptive difference in responses from women and men emerged from their fear of failing. Women (22%) indicated more fear of failing than men (13%). This is backed up by findings across different age groups that – in general – females have a stronger fear of failing than males (Borgonovi & Han, 2021; Levy et al., 2012; Nelson et al., 2013). Anticipating failure can explain gender differences in desire for preparedness, especially with low levels of qualification fit, because women's needs for security and reduction of risks are challenged.

Further, regarding job applications, Lee (2018, Study 4) showed that 'default' risk perceptions play a role for gender differences in desire for preparedness. As an intervention to reduce the perceived risk, Lee (2018, Study 5) examined the effects of using a growth mindset communication (i.e., the company values learning experiences) in a job advertisement. When the job advertisement did not include a growth mindset communication, women reported a higher desire for preparedness than men. However, when the job advertisement conveyed a growth mindset, this gender difference disappeared because women's desire for preparedness was reduced (Lee, 2018). In sum, avoiding negative experiences due to stronger fears of failing in an insecure, risk-prone job environment, women may prefer to have a higher level of preparedness and may avoid applying when only 60% are qualified.

### 1.4 | Gender differences in application intentions: Focus on male or female potential applicants

Notably, most discussions so far have focused on women. However, Lee (2018) noticed that women, men or both could be the drivers of differences. Men, for example, may underestimate the degree of preparedness necessary and be overly self-confident with different levels of preparedness (Lee, 2018). Men may perceive a lower degree of preparedness as necessary than women and therefore refrain from applying when they are 100% qualified as they have learned that they are rated as less committed when being overqualified ('commitment penalty', which does not exist for overqualified women; Campbell & Hahl, 2020). Regarding over-confidence, Neyse et al. (2016) reported that men showed a strong positive bias for them outperforming other men, whereas women showed no reliable overconfidence for outperforming other women. There is also evidence that men in general experience higher person-job fit than women (e.g., Cifre et al., 2013; Yousaf et al., 2022) that can be attributed to the hypothesis that men already perceive such a fit with lower objective fit levels (such as 60%). It is also possible that men refrain from applying with a very high qualification fit because their needs focus more on mastering challenges, career opportunities and further qualification gains. Deschacht et al. (2017) reported supporting evidence on these gender differences: Male young professionals were more interested in demanding and less routine jobs than their female counterparts and a meta-analysis by Netchaeva et al. (2022) confirmed a small but reliable stronger leadership aspiration by men than by women.

### 1.5 | Past research on gender differences in desire for qualification fit

As already mentioned above, few studies have tested the idea that women only apply with a 100% qualification fit whereas men already apply when they perceive a 60% fit. Two exceptions are directly relevant to our research: Lee (2018) examined women's and men's *desire* for preparedness regarding qualification fit, and Brown (2022) attempted to replicate the results. In Lee's (2018) set of studies, participants were asked to imagine that they were looking for a new job. Participants then indicated their desired qualification fit by selecting a number between 0% and 100% in response to the statement 'You will apply for a job if you think you have X% of the skills and knowledge that the job requires' (Lee, 2018, p. 12). Across five studies, women strived for a significantly higher preparedness than men, as women wanted to fulfill a higher percentage of the qualification criteria (79%) before they would apply for a job than men (72%). Brown (2022, Study 1) could not replicate this result, which makes it interesting for us to run replications on this measure and meta-analyse these studies. To do so, we added the measure of the general level of desired preparedness at the end of our Studies 2 and 3 for replication purposes and report a small-scale meta-analysis. However, as outlined in the next section, we only added this measure at the end of our studies as we had multiple

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reasons to choose a different research design for our investigation of the hypothesis that the positive relationship between qualification fit and application intention may be stronger for women than men.

### 1.6 | The present research

The present research goes beyond the analysis of the percentage of qualification criteria participants desire to fulfill before applying for a job as reported in Lee (2018) and Brown (2022) in several ways. First, with Lee's and Brown's method participants are asked to take qualification fit into account when responding. In our study designs, participants were not aware that we were studying qualification fit (especially in Studies 2–4). Second, estimated percentages (or given percentages as in Study 2 of Brown, 2022) are a rather simplistic and at the same time very abstract measure. It is unclear whether and how such abstract estimations of desire for preparedness are actually spontaneously generated by participants when thinking about a job. In contrast to such an approach, we manipulated qualification fit or assessed participants actual qualification fit for a concrete, realistic job advertisement for which participants indicated their application intention. Third, the gender difference in desire for preparedness found in Lee (2018), 72% versus 79%, was rather small compared to the 60% versus 100% claim. The present studies therefore tested for significant gender differences at different levels of qualification fit (Studies 2–4). As the two prior studies of Lee (2018) and Brown (2022) showed inconsistent results, we report Bayesian analyses in addition to classical frequentist analyses to test whether women may want to have a higher qualification fit than men when applying for a job with state-of-the-art statistical analyses upfront. Fourth, the present research was based on German samples (compared to the work by Lee, 2018, and Brown, 2022, whose research was based on US American participants). Germany as the biggest national economy in Europe (e.g., Buchholz, 2024) presents a compelling context for replication purposes. On the one hand, it is characterized by socio-economic and cultural similarities with the United States – for example, both countries have made significant strides in addressing gender biases and gaps (OECD, 2022). On the other hand, there remain noteworthy disparities (e.g., the gender gap index is smaller in Germany than in the USA; World Economic Forum, 2023). By choosing Germany as a context for investigation, we aimed to conduct a replication and extension of prior research from Lee (2018) and Brown (2022). The main goal of the following studies was to test whether there are gender differences in application intention depending on qualification fit. Beyond this main goal, across the four studies we exploratorily also assessed several of the explanatory variables outlined above (e.g., rule abidance, fear of failing).

In the following, we present four studies investigating whether women may want to have a higher qualification fit than men when applying for a job and the possible reasons for such a gender difference different paradigms were used to realize conceptual replications examining gender differences in application intention depending on manipulated or assessed qualification fit. In Study 1, an experimental approach was administered by using hypothetical application scenarios with a manipulated qualification fit of CVs and job advertisements. Participants were asked to imagine that the presented CV was their own and indicate how much they would intend to apply for a job. Using a correlational study design, in Studies 2–4, we presented a job advertisement and asked the participants how much they intended to apply for the job. Afterwards, participants' qualification fit was assessed by having participants report which of the qualification criteria they themselves fulfilled. Data and materials are available at https://osf.io/ed8w7/?view_only=03ca36afc527405d927bb326a18c052e.

## 2 | STUDY 1

### 2.1 | Method

#### 2.1.1 | Participants

In this online study $N = 289$ students from German universities (76% female) participated. One participant indicated not identifying as male or female. In this as well as the subsequent studies reported, we excluded participants who identified as another gender from the analyses as their sample size was too small for gender-grouped statistical analyses. Participants were recruited via e-mail, Facebook and two university-specific participant pools. Participants' mean age was 23.77 years ($SD = 4.65$). Seventy-seven per cent of the participants were students in the field of social sciences and 3% were students in media sciences. The mean number of semesters studied was $M = 6.88$ ($SD = 4.43$). As this was the very first study using this design, no information about effect sizes was available and therefore no a priori power analysis could be calculated.

#### 2.1.2 | Procedure and design

At the beginning of the experiment, participants read that we were conducting research on personnel selection and were interested in the question of which job advertisements were interesting for which people. We asked participants to imagine they were about to finish their university education and wanted to write their final thesis in a company. Next, participants read a job advertisement for a position to write a thesis in a company for media design (see the Supporting Information for materials). We chose media design as a field of study with an almost balanced number of female and male students (Statistisches Bundesamt, 2021) to ensure a comparable interest in the job described for both genders. This decision was based on our goal to test the claim whether women only apply for a job when they are 100% qualified, whereas men already apply for a job when they are 60% qualified and the possible reasons for such a gender difference in an as (gender-)neutral context as possible, as past studies have shown that women's application intention is more dependent on context compared to men's application intention (Barbulescu & Bidwell, 2013; Fluchtmann et al., 2022). We thereby tried to avoid confounding effects from other context variables. The job advertisement included a description of the company, the tasks and 10 qualifications required for the job (e.g.,

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qualification 'You have experience abroad'). To engage participants with the job advertisement and make sure that they carefully read it, we asked seven questions about the content of the job advertisement (mandatory questions depicted on the same page as the job advertisement, for example, 'In which team would you write your thesis?', as fillers, not analysed).

Afterwards, participants saw one of two CVs which differed in qualification fit in four qualification criteria (e.g., social year in a home country vs. year abroad after finishing school): One CV met all 10 criteria listed in the job advertisement (= 100% qualification fit) while the other CV met only six out of 10 criteria (60%). Participants' task was to imagine this was their own CV. We, therefore, aimed to create a CV our participants should be able to widely identify with in terms of experience, skill levels and grades. The resulting design was a 2 (participant gender: female vs. male) × 2 (condition: 60% vs. 100% objective qualification fit) between-subjects design with random assignment to the condition groups. A manipulation check measured the qualification fit perceived by the participants. Next, participants indicated their intention to apply for the position in the hypothetical scenario. Finally, participants answered questions that explored potential mediators of the hypothesized gender difference in application intentions (rule abidance, self-esteem and self-efficacy).

Participants could open the job advertisement and the CV in a separate window to have it available while answering the dependent variables, as no memory test was intended and as in actual application settings job advertisement and CV are also available when deciding whether to apply. At the end of the experiment participants could choose to receive course credit or participate in a lottery to win 3 × 15€ Amazon vouchers.

### 2.1.3 | Measures

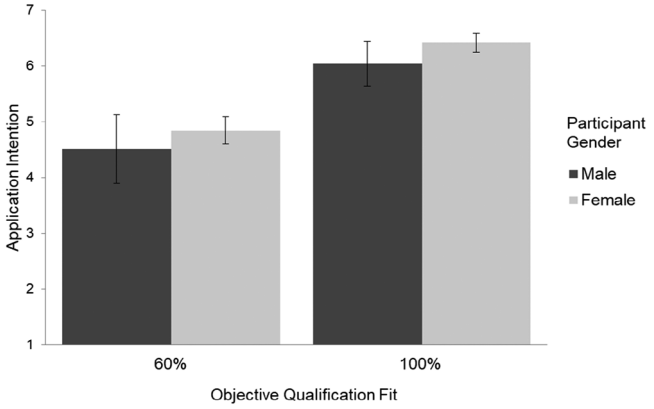
Participants responded to all measures on 7-point rating scales ranging from 1 = *do not agree at all* to 7 = *totally agree*, if not indicated otherwise.

*Manipulation check*. Participants ticked the criteria listed in the qualifications section in the job advertisement they fulfilled with 'their' hypothetical CV resulting in scores from 0 to 10 criteria met.

*Application intention*. Participants' application intention was measured with two items: 'I would apply to the advertised position with this CV.', and 'If this were my CV, I would be very interested in applying for the advertised position' (adapted from Hentschel et al., 2018; $r$ (287) = .69, $p < .001$. Participants' scores on the two items were averaged.

*Rule abidance*. We included rule abidance and self-esteem/self-efficacy as potential mediators explaining gender differences in application intention. Participants' rule abidance was assessed with five items, for example, 'Even if I don't like a rule, I usually follow it.' (adapted from Portillo & DeHart-Davis, 2009; $\alpha = .70$; average score).

*Self-esteem and self-efficacy*. We asked participants one question on their self-esteem 'I have a high self-esteem.' (Robins et al., 2001) and three questions on their self-efficacy, for example, 'In difficult situations, I can rely on my abilities.' (Beierlein et al., 2014; $\alpha = .88$; average score).




*Note*. Error bars represent 95% confidence intervals.

**FIGURE 1** Application intention depending on objective qualification fit and participant gender (Study 1).

## 2.2 | Results

### 2.2.1 | Manipulation check

In the 60% qualification fit condition participants ticked on average 5.94 ($SD = 0.91$) criteria they fulfilled with their imagined CV, whereas in the 100% condition participants ticked 9.42 ($SD = 1.14$) criteria, $F(1, 285) = 621.67$, $p < .001$, $\eta^2 = .69$, indicating a successful manipulation of qualification fit. The main effect of participant gender, $F(1, 285) = 2.08$, $p = .151$ (female participants responded slightly higher perceived fit than male participants), and the Participant gender × Condition interaction were not significant, $F(1, 285) = 0.50$, $p = .479$.

### 2.2.2 | Application intention depending on participant gender and qualification fit

The predicted Participant gender × Objective qualification fit interaction was not significant, $F(1, 285) = 0.01$, $p = .906$ (see Figure 1). Female and male participants did not differ in their application intention in the 60% qualification fit condition, $M_{diff} = 0.33$, $SE = 0.25$, $p = 1.000$. In the 100% qualification fit condition, female and male participants' application intention was overall higher (main effect of condition: $F(1, 285) = 79.70$, $p < .001$, $\eta^2 = .22$), and again did not differ, $M_{diff} = -0.37$, $SE = 0.25$, $p = .775$. To further test the null effect of the interaction relevant for testing whether women only apply for a job when they are 100% qualified, whereas men already apply for a job when they are 60% qualified, a Bayesian analysis of variance was conducted (using the default priors in JASP software; JASP Team, 2023) comparing a null model including only a random effect for the subjects and the main effects of participant gender and qualification fit condition to a model that additionally included the predicted interaction term. For the inclusion of the interaction term, a Bayes factor of $BF_{01} = 4.660$ was found. A Bayes factor of this magnitude is conventionally described as substantial evidence for the null hypothesis (Wagenmakers et al., 2011).

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Thus, the Bayes factor speaks against the presence of the predicted interaction. Across conditions, female participants indicated a higher application intention than male participants, $F(1, 285) = 4.11$, $p = .043$, $\eta^2 = .01$.[1]

### 2.2.3 | Rule abidance

As expected, the gender difference in rule abidance was significant, $t(287) = -2.84$, $p = .005$, $d = -.39$. Female participants ($M = 5.01$, $SD = 0.82$) indicated higher rule abidance than male participants ($M = 4.67$, $SD = 0.99$). Rule abidance did not predict application intentions across conditions ($\beta = .06$, $t(287) = 0.98$, $p = .326$). From a theoretical point of view, women's higher rule abidance compared to men's can be expected to result in lower application intention with lower levels of qualification fit but with higher application intention with higher levels of fit. Therefore, we report indirect effects of gender on application intention via rule abidance separately for the low and high qualification fit condition. The results of the moderated mediation model revealed that the indirect effect of participant gender on application intentions through rule abidance was only significant in the 100% qualification fit condition (female gender predicted higher application intentions via higher rule abidance, $b = 0.08$, $SE = 0.05$, 95% CI [0.001, 0.19]) and not – as predicted – in the 60% condition ($b = -0.03$, $SE = 0.06$, 95% CI [−0.15, 0.11]).

### 2.2.4 | Self-esteem and self-efficacy

Again as expected, the gender difference in self-esteem was significant, $t(287) = 2.42$, $p = .016$, $d = .33$. Male participants ($M = 5.11$, $SD = 1.49$) indicated a higher self-esteem than female participants ($M = 4.63$, $SD = 1.45$). Self-esteem positively predicted application intentions, $\beta = .14$, $t(287) = 2.31$, $p = .021$. Yet, the indirect effect of participant gender on application intentions through self-esteem was not significant in both qualification fit conditions (60% condition: $b = -0.09$, $SE = 0.06$, 95% CI [−0.23, 0.01], 100% condition: $b = -0.04$, $SE = 0.04$, 95% CI [−0.12, 0.03]). The gender difference in self-efficacy was not significant, $t(287) = 1.51$, $p = .133$. Self-efficacy did not predict application intentions across conditions, $\beta = .10$, $t(287) = 1.76$, $p = .080$. The indirect effect of participant gender on application intentions through self-efficacy was not significant in both qualification fit conditions (60% condition: $b = -0.04$, $SE = 0.04$, 95% CI [−0.19, 0.02], 100% condition: $b = -0.05$, $SE = 0.04$, 95% CI [−0.17, 0.01]).

## 2.3 | Discussion

In this first experiment, even though the manipulation check confirms a successful manipulation of qualification fit, we did not find evidence for the claim that women only apply when they are 100% qualified, whereas men already apply when they are 60% qualified. Both genders took qualification level into account to a significant and – more importantly – to an equal degree when deciding on an application. We ran two replications of this first experiment (reported in the Supporting Information, also using manipulated qualification fit by presenting hypothetical CVs). Even when integrating the three datasets to maximize power the predicted gender difference in the 60% qualification fit condition did not emerge, $\beta = -.05$, $t(496) = -0.41$, $p = .685$. Note that this was the case, although we found the expected gender differences in rule abidance, self-esteem (although not in self-efficacy) and fears of failing (see Supporting Information Study 1 – Replication 2).

On the one hand, this result may provide a first indication that the proposed gender difference is not as universal as proposed or may only exist for different levels of qualification fit. As mentioned before, the only other empirical tests of the hypotheses of gender differences in this area by Lee (2018) and Brown (2022) reported much smaller gender differences in desire for preparedness than those highlighted in the 100% versus 60% claim (Sandberg, 2015) that was tested in the present first study. On the other hand, Study 1 was based on a completely hypothetical scenario as participants had to imagine a presented CV as their own and had to express their intention to apply to a hypothetical job advertisement. This can be criticized for lacking self-relevance of the situation or lacking identification with the CV. Participants may even have felt they were in the position of advising the person whose CV they had read, a situation for which Lee (2018, Study 2) has already shown an absence of gender effects: Women and men gave highly similar recommendations regarding desire for preparedness to female as well as male friends. We therefore developed a new method for the next set of studies to overcome these limitations.

# 3 | STUDIES 2–4

The new method applied in Studies 2–4 comprised presenting a job advertisement and asking the participants how much they personally intended to apply. Afterwards, the participants checked the qualification criteria listed in the job advertisement they themselves fulfilled. By using this new study paradigm, no CV had to be imagined, reducing the hypotheticality of the task. To increase the conciseness of the presentation and as the basic design was the same across Studies 2–4 (for details concerning the individual studies, see the Supporting Information), we present the results in an integrative data analysis of the merged datasets of Studies 2–4 with study number as a dummy variable.

## 3.1 | Method

### 3.1.1 | Participants

In Study 2 $N = 213$ students from German universities (70% female) participated online. Participants were recruited via e-mail, a university-specific participant pool, SurveyCircle and personal contacts. Sixty-five

[1] To keep results of the different studies comparable, analyses in the main manuscript are reported, for example, without pre-registered covariates which varied from study to study. Corresponding analyses, for example, with covariates, are reported in the Supporting Information.

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per cent of the participants were studying social sciences. Participants' mean age was 23.34 years ($SD = 3.41$).

In Study 3 $N = 316$ students from German universities (68% female) participated online. Participants were recruited via e-mail, a university-specific participant pool, SurveyCircle, social media and personal contacts. Participants' mean age was 23.94 years ($SD = 4.91$). Participants came from diverse fields of study (38% psychology, 15% business, 8% sociology and political sciences, 6% engineering, 4% media and communication, 29% other; mean number of semesters $M = 7.87$, $SD = 5.20$).

In Study 4 $N = 278$ participants (72% female, 51% currently studying, 62% currently working) participated online. Participants were recruited via e-mail, a university-specific participant pool, social media and personal contacts. We targeted at participants who were about to finish university or have just started working. Participants' mean age was 31.66 years ($SD = 13.89$). Thirty-five per cent of the sample was at least in the fourth semester or already having a degree in social sciences or business. On average, participants had $M = 10.74$ ($SD = 12.35$) years' of work experience.

To maximize power, we merged the three datasets. The integrative data analysis comprised $N = 807$ participants (70% female). This integrative data analysis had 80% power to detect a Participant gender × Subjective qualification fit interaction effect of $f \geq 0.14$ (power analyses for the individual studies are reported in the Supporting Information).

### 3.1.2 | Procedure and design

Participants were informed that we were conducting research on their thoughts and feelings in application situations. We would be asking them for personal information typically found in CVs, but answers were voluntary and anonymous. Next, participants had to agree to our data protection and informed consent regulations to start the study. In all three studies, we asked the participants to imagine they were looking for a job. Then participants saw a job advertisement (Studies 2 and 3 for two different newly created student assistant positions, Study 4 for a consultant position). The job advertisement included a description of the tasks and 10 qualifications required for the job. Next, participants reported their application intention. Participants then indicated which of the 10 qualification criteria listed in the job advertisement they personally fulfilled. Afterwards, questions on potential mediators (fear of backlash and growth mindset) and a test of whether women and men differ with regard to which level of competence and skill is perceived to be required to present oneself as fulfilling a qualification criterion followed (see the Supporting Information for details and results).

### 3.1.3 | Measures

*Application intention.* For the integrative data analysis, we used the item 'I would apply to the advertised position.', as this was present in all three studies.

*Subjective qualification fit.* For each of the 10 qualification criteria listed in the respective job advertisement (e.g., studying at a university), the participants indicated whether they fulfilled the criterion (yes/no). The resulting subjective qualification fit score ranged from 0% to 100%.

*Desire for preparedness.* In addition to the experimental test of gender differences in application intention depending on qualification fit, in Studies 2 and 3 we asked about the participants' desire for preparedness in general (without a specific job description) to test whether we would replicate Lee's (2018) finding that women want to be more prepared for a job than men. Participants answered the question 'Imagine you have just read an advertisement for a job you are interested in. What % match do you need with the qualifications listed to apply?'

*Fear of backlash.* In Study 3, we asked nine questions on participants' fear of backlash in application contexts (six items stem from Salwender et al., 2023; three items from Moss-Racusin & Rudman, 2010). For example, we asked whether participants 'would be worried that recruiters would perceive them as being too assertive' (1 = *not at all* to 7 = *very much*; $\alpha = .81$).

*Growth mindset.* Also in Study 3, we added four questions asking about participants' growth mindset regarding job skills (e.g., 'I can learn new skills that I need for I need for a job.', self-created inspired by Dweck, 2017; $\alpha = .75$; see the Supporting Information for additional questions on intelligence and personality growth mindset).

## 3.2 | Results

### 3.2.1 | Application intention depending on participant gender and qualification fit

Studies 2–4 allowed us to test the Gender × Qualification fit interaction for the whole spectrum of qualification fit with a hierarchical regression analysis. Application intention was the criterion and participant gender, qualification fit and their interactions were the predictors in the analysis. Interest in the specific job advertisement served as a control variable in step 1 of the analysis, as each study used a different job advertisement (the results were virtually identical with and without interest as the control variable, see the Supporting Information). Additionally, the study number and the respective interactions were added to test the consistency of the results across studies. The results are reported in Table 1 and Figure 2. Higher qualification fit predicted higher application intentions. Overall, female participants indicated a higher application intention than male participants. The Participant gender × Qualification fit interaction was significant. A first finding was that – in line with expectations – the correlation between qualification fit and application intention was significantly positive for the female participants, $r\,(564) = .30$, $p < .001$. For male participants, the correlation was also positive, but not significant, $r\,(239) = .08$, $p = .223$. The two correlations differed significantly from each other, Fisher's $z$-test: $z = 2.97$, $p = .002$. In addition, a Bayesian linear regression was conducted comparing a null model, including participant gender, qualification fit and interest, to a model that additionally included the Participant gender × Qualification fit interaction term (step 3 from

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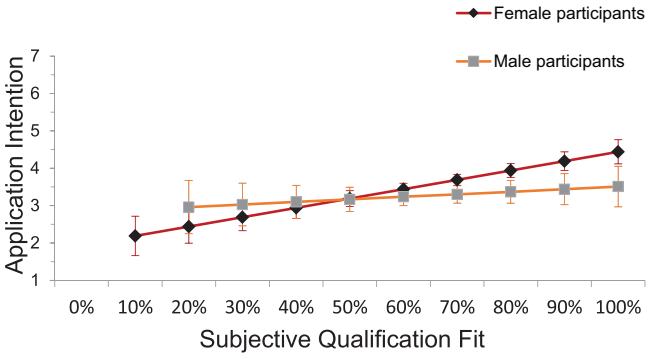
**TABLE 1** Hierarchical regression analysis predicting application intentions (integrative data analysis: Studies 2–4).

| Variable | β | t | p | Adj. $R^2$ | $\Delta R^2$ |
|---|---|---|---|---|---|
| Step 1 | | | | .13 | |
| Interest | 0.36 | 10.95 | <.001 | | |
| Step 2 | | | | .16 | .03 |
| Participant gender | 0.08 | 2.53 | .019 | | |
| Subjective qualification fit | 0.17 | 5.19 | <.001 | | |
| Step 3 | | | | .17 | .01 |
| Participant gender × Subjective qualification fit | 0.08 | 2.08 | .038 | | |
| Step 4 | | | | .20 | .03 |
| D2 | −0.12 | −2.79 | .005 | | |
| D3 | 0.03 | 0.68 | .494 | | |
| D2 × Subjective qualification fit | 0.04 | 0.70 | .482 | | |
| D3 × Subjective qualification fit | −0.07 | −0.96 | .336 | | |
| D2 × Participant gender | 0.10 | 1.87 | .062 | | |
| D3 × Participant gender | 0.05 | 1.00 | .318 | | |
| D2 × Participant gender × Subjective qualification fit | −0.07 | −1.20 | .231 | | |
| D3 × Participant gender × Subjective qualification fit | −0.08 | −1.07 | .286 | | |

*Note*: Female participants = +0.5, male participants = −0.05; study number: reference group is Study 2; D2 compares Study 3 to Study 2, D3 compares Study 4 to Study 2.




*Note.* Error bars represent 95% confidence intervals.

**FIGURE 2** Application intention depending on subjective qualification fit and participant gender (integrative data analysis).

Table 1). For the inclusion of the interaction term, a Bayes factor of $BF_{01}$ = 1.04 was found. A Bayes factor of this magnitude is conventionally described as anecdotal evidence for the null hypothesis (Wagenmakers et al., 2011). Thus, the Bayes factor speaks tentatively against the presence of the predicted interaction. We also performed individual analyses for the three samples that underlined the Bayesian results of a very small or null interaction effect: The crucial Participant gender × Qualification fit interaction was not consistently found in the individual studies ($\beta_s$ ranging from .05 to .83, $p_s$ from .024 to .367; see the Supporting Information). Overall, the pattern is in the predicted direction, but if it exists at all, the effect is very small and primarily driven by women's higher application intention (or phrased the other way around, by men's lower application intention) at high levels of qualification fit (for 70–100% qualification fit the confidence intervals of women's comparatively higher and men's lower application intention values do not overlap, for qualification fit lower than 70% the confidence intervals overlap).

### 3.2.2 | Fear of backlash

In Study 3, we asked participants about their fear of backlash in application situations. Female participants ($M$ = 3.55, $SD$ = 1.02) indicated as expected a higher fear of backlash than male participants ($M$ = 3.24, $SD$ = 0.98), $t(314) = -2.52$, $p = .012$, $d = -.31$. Fear of backlash did not predict application intentions across levels of qualification fit, $\beta = .04$, $t(314) = 0.64$, $p = .522$. As it was the case for rule abidance in Study 1, women's higher fear of backlash compared to men's can be expected to result in lower application intention with lower levels of qualification fit but with higher application intention with higher levels of fit. The investigation of a moderated mediation model revealed that the indirect effect of participant gender on application intention through fear of backlash was neither significant for low, medium nor high qualification fit (the confidence intervals for the indirect effect participant sex → fear of backlash → application intention included zero at the 16th, 50th and 84th percentile of qualification fit).

### 3.2.3 | Growth mindset

Besides fear of backlash, we added a measure of participants' growth mindset in Study 3. No gender difference in job growth mindset emerged ($M_F$ = 6.07, $SD$ = 0.84; $M_M$ = 6.02, $SD$ = 0.84; $t(314) = -0.47$,

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$p = .640$). Job growth mindset did not predict application intentions, $\beta = .03$, $t(314) = 0.54$, $p = .588$. Again, we ran a moderated mediation model. The indirect effect of participant gender on application intention through growth mindset was neither significant for low, medium nor high qualification fit (the confidence intervals for the indirect effect participant sex → growth mindset → application intention included zero at 16th, 50th and 84th percentile of qualification fit).

#### 3.2.4 | Desire for preparedness

Based on the data of Studies 2 and 3, female participants ($M = 75.67\%$, $SD = 11.66$) indicated a higher desire for preparedness than male participants ($M = 73.00\%$, $SD = 11.40$), $F(1, 525) = 6.06$, $p = .014$, $\eta^2 = .011$ (study number was included as a dummy in this analysis and did not significantly moderate the main effect, $p = .668$).

### 3.3 | Discussion

In this integrative data analysis summarizing Studies 2–4, we found a significant, but not robust gender difference in application intention depending on qualification fit. However, if at all, the gender difference was rather found in the higher levels of qualification fit with men showing lower intentions to apply when highly qualified. The predicted gender difference in the lower qualification levels was not found. Further, we found a gender difference in fear of backlash but no gender difference in growth mindset. Additional analyses showed that neither of these two variables was responsible for the significant but not robust effects of gender on application intentions in the low as well as in the high qualification conditions (no moderation of the basic Participant gender × Qualification fit interaction and no mediation of the effect of gender on applications intentions in either the low, medium or high fit conditions). In contrast to the weak and not robust support for the claim that qualification fit affects men´s and women´s application intentions differently, the gender difference in the general desire for preparedness was robustly replicated. Before discussing these results, we present a small-scale meta-analysis on the gender difference in desire for preparedness based on our own findings and those reported by Lee (2018) and Brown (2022).

## 4 | SMALL-SCALE META-ANALYSIS: WOMEN'S AND MEN'S DESIRE FOR PREPAREDNESS

The small-scale meta-analysis comprised 11 effects of gender on the desire for preparedness from Lee (2018, $k = 6$; only the control group data if an intervention was tested), Brown (2022, $k = 1$), the present Studies 2 and 3 ($k = 2$) and the two replication studies reported in the Supporting Information ($k = 2$). Women's desire for preparedness ranged between 73% and 80% and men's between 67% and 79%. Overall, women's desire for preparedness was significantly higher than men's desire for preparedness, $d = 0.31$, 95% CI [0.20, 0.42].

## 5 | GENERAL DISCUSSION

We conducted four studies to examine whether women prefer to have a higher qualification fit than men when applying for a job. In Study 1, we used an experimental approach presenting hypothetical CVs to the participants. In this study, we did not find evidence for a Gender × Qualification fit interaction. However, as discussed above, this study design may have come with limitations (e.g., hypotheticality, analogy to 'giving advice to a friend'). Therefore, in Studies 2–4 we used a correlational approach to eliminating those limitations at least to some degree by asking participants for their personal application intention and assessing participants' actual perceived qualification fit. In these latter studies, we found a small indication for a stronger relation between qualification fit and application intention for women than for men which was especially driven by women's higher application intention compared to men's at high levels of qualification fit. However, the results of a Bayesian analysis and variations of results across studies speak against the robustness of this gender difference and leave the conclusion that more data are needed for a definite evaluation.

For all four studies reported, we tried to develop application scenarios that were realistic and tailored for the participants of the respective study. In addition, we created job advertisements using gender-neutral wordings and layouts with the intent that women and men were equally attracted to the respective jobs. Yet, despite these efforts, interest ratings were overall low and sometimes differed between women and men. Therefore, to examine the relation between qualification fit and application intention without confounds of higher or lower interest in the advertised job, we controlled for participants' interest in the analysis, arriving at the same results (see the Supporting Information). Future studies should invest in assessing qualification fit and application intention in real application processes to eliminate hypotheticality altogether and maximize interest. Beyond study design, different participant samples should be investigated in future research. The samples in this research are mostly comprised of university students who may be unaware or less experienced regarding work-related gender biases. This potentially leads to much lower chances of detecting gender differences compared to working persons samples.

To summarize Studies 1–4, tentative evidence hints towards qualification fit potentially being more important for women than men in their thoughts and feelings in application processes. The strongest evidence for such a conclusion is provided by a robust gender difference in desire for preparedness which consistently emerged for the general desire for preparedness measure that was independent of the specific study designs and job advertisements. Women indicated a higher desire for preparedness in application situations than men. This speaks – together with gender differences in self-esteem and other variables where gender differences relevant for application intention emerged – for a higher psychological hurdle being present for women compared to men as women have to overcome their higher desire for preparedness to make the decision on whether to apply for a job. As qualification fit was unrelated to application intentions for male applicants it remains unknown which factors play a role in their application intentions, potentially other sections of job advertisements such as

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company descriptions or salary information. Future research may also focus on a potentially smaller interest of men relative to women in job advertisements with very high levels of qualification fit (see below).

## 5.1 | Theoretical contributions

The results from Studies 2–4 suggest that it may be more worthwhile to focus on gender differences at high levels of qualification fit as gender differences in application intention in our data mainly emerged at high levels of qualification fit. This could be an important focus for future research, especially for an examination of mediators. While past narratives have focused on women and deficits (e.g., lacking self-confidence; in the application area in general a large amount of past research has focused on female applicants, from both actor and observer perspectives; Moss-Racusin & Rudman, 2010; Salwender et al., 2023; Williams & Tiedens, 2016), a gender difference at high levels of qualification fit might be better explained by women being more rule abiding than men (see moderated mediation in Study 1). It is also conceivable and therefore to be tested in future research that men may be striving more (and women striving less) for challenges and opportunities for development and therefore intending to apply less than women (or more) when their fit is very high.

Additional mechanisms may play a role as well, such as men overestimating their overall fit (Nicks et al., 2022). In this regard, gender differences may appear in consecutive steps in the application process and may add up to final differences in application intention and success (see also the discussion of small, cumulative gender effects in Szillis & Stahlberg, 2007). Female and male applicants may, for example, differ in their subjective decision on how much knowledge or skill they need to fulfill a qualification criterion as well as in their overall fit perception. At first glance, our Studies 2–4 (see the Supporting Information) seem to contradict this possibility: female and male applicants similarly estimated the degree to which they fulfilled a single qualification criterion depending on their self-perception of performance (e.g., whether an applicant says they fulfill the criterion of speaking English fluently or not depends on their self-rated language skills but not on gender). However, these findings rely on self-reports (and men's self-perception of skill may be inflated or women's may be underestimated) and should be complemented with other-reports as well as more objective measures (e.g., English test). If women do not perceive the same objective fit as subjective fit as men, this would even enhance the final application decision on gender differences.

Our findings of a significant but not robust gender difference in application intentions depending on qualification fit in experimental and correlational designs and at the same time a robust and replicated gender difference in desire for preparedness (small-scale meta-analysis) may also appear contradictory at first glance. One potential explanation could be that for women higher psychological hurdles are present than for men when deciding whether to apply for a job or not, but women are willing and capable of going the extra mile and consequently no robust gender difference in application intentions based on qualification fit emerges. This might be part of a larger phenomenon as, for example, Salwender et al. (2023) found very small differences in women's and men's intention to seek power positions and at the same time large gender differences in psychological hurdles such as fear of backlash.

Despite the psychological hurdle explanation, other explanations are conceivable for explaining the initial contradictory findings, for example, context. We sought to test whether women may want to have a higher qualification fit than men with university students in an as neutral context as possible to test its validity in a neutral, common and generalizable setting. For this purpose, we used gender-inclusive language and neutral adjectives in the job advertisements and gender-balanced jobs (see the detailed methods sections of Studies 1–4 in the Supporting Information) and did not find strong support for a gender difference in application intention depending on qualification fit using correlational and experimental designs. However, context may be an important moderator in this regard. The neutral context as well as the student assistant positions targeted in the reported studies (that were chosen to achieve relevance and closeness to reality for the student samples) contrast with the career advancement/leadership context for which the statistic has been proposed. The proposed effect may only be found in high-stakes, male-dominated areas, as such a context could induce lack-of-fit mechanisms such as the fear of not being able to meet expectations (Heilman, 1983). Therefore, future research should investigate context as a moderator.

Further, even though much can be learned from the presented studies, several important questions remain unanswered. It would be very interesting to learn which application strategy (e.g., applying selectively, which may be a wise investment of applicants' time but may entail the risk of lost opportunities) is more advantageous and whether female applicants' fear of falling short of expectations are valid, even when women are as qualified as men. In general, applicants with relatively high qualifications are perceived as more hirable than applicants with relatively low qualifications (Hardy et al., 2022), showing that taking qualification fit into account when making application decisions is in general a good strategy. An analysis of a recruiting company, however, finds no increase in chances of being invited to an interview from 50% qualification fit to 100% qualification fit, for women even from 40% onwards, and therefore recommend applying once a match of 50% is achieved (Jaja, 2018). The first evidence even hints at drawbacks for very high qualification fits. In one study, for example, being highly capable led to less favourable impressions by hiring managers compared to being just adequately capable as, among other things, highly capable candidates were perceived as having more outside job options and may potentially quit sooner (Galperin et al., 2020). Men might be more aware of such drawbacks and/or integrate this awareness more strongly into their application strategy.

These findings from prior research would speak for a recommendation to apply at lower levels of fit than 100%, but this advice might not work for women: Research shows that female applicants' stronger fears of not being able to meet expectations compared to male applicants' fears seem – at least to some extent – valid. The same performance has been found to be perceived differently depending on the gender of the actor in the direction that women's performance was

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devalued (Heilman, 2001). This is even more intriguing as past research has found that in hiring decisions for women competence plays a central role, whereas for evaluations of men potential plays a larger role (Gerdes & Garber, 1983; Player et al., 2019). Further, Niessen-Ruenzi and Zimmerer (2023) showed that especially when the evaluation of leadership potential of candidates proved difficult (e.g., outside hires), signalling skills were more important for female than male candidates.

## 5.2 | Limitations and future directions

Rejecting a gender difference in application intention depending on qualification fit based on the data presented might be premature because of several shortcomings in our studies. Future research could improve the research design by incorporating real application situations for actual job seekers, job advertisements from high-stakes, male-dominated areas or use company application data instead of hypothetical situations (see also interim discussion on low interest in the respective jobs in our studies). Further, with a dichotomous yes/no decision that has to be made in real-life situations, gender differences may be aggravated. It, therefore, seems especially relevant to learn more about the discrepancy of women indicating a higher application intention overall than men in our studies, whereas Tockey and Ignatova (n.d.) reported that women applied to fewer jobs than men on the actual job market. This discrepancy could have arisen due to response tendencies, social desirability, different types of jobs examined, etc. Future research should investigate, for dichotomous application decisions, the number of jobs women and men apply for and whether qualification fit can predict which jobs they apply to.

Further, future research should investigate whether the null findings in experimental and correlational designs measuring application intentions in Studies 1–4 replicate using different methods. For example, in a longitudinal study participants could first indicate which criteria they fulfill from a large pool of qualifications. Then participants could be randomly assigned to different fit conditions and the job advertisements could be created based on the qualification criteria information provided by the participants. Also, in cooperation with organizations, applications could be rated regarding their qualification fit and this could be regressed on applicants' gender. For internal hires, available employee data could be used for a more objective assessment of qualification fit (e.g., age as a proxy for experience).

## 5.3 | Practical implications

Based on our research findings, authors of online magazine and blog articles should refrain from citing anecdotal findings or mere claims on male and female application behaviour as empirically based knowledge because the matter seems more complex (e.g., psychological hurdles) and does not currently seem evidence-based. Organizations are advised to check for gender imbalances in their applicant pool as many factors are known to disproportionately prevent more female than male applicants from applying for jobs. Gender imbalances in psychological hurdles in application processes (e.g., fearing not being able to meet expectations) should particularly be considered when designing application processes to avoid overlooking female potential. Further, hiring biases can entail negative monetary effects for organizations (utility loss; Hardy et al., 2022). This calls for thorough investigations of biases in recruiting processes leading to different standards and outcomes for female and male applicants and ways to reduce those. Studies that research recruiters' perceptions of men and women who apply with different degrees of qualification fit will be informative in this regard. Such studies can complement previous work to develop interventions that have been found to be highly effective for both female and male applicants, especially when teaching job search skills, improving self-presentation, boosting self-efficacy and encouraging proactivity (Liu et al., 2014). These aspects should be considered by providers of such interventions and by individuals when selecting those.

## 5.4 | Conclusion

We tested the popular claim that women only apply for jobs when they are 100% qualified, whereas men apply already when they are as little as 60% qualified or – more generally – whether women may want to have a higher qualification fit than men in order to apply for a job. Across one experimental and three correlational studies, we did not find robust gender differences when measuring application intentions depending on qualification fit. In addition, we consistently found higher psychological hurdles present for women present in application situations, such as a generally higher desire for preparedness in women.

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### CONFLICT OF INTEREST STATEMENT

This article is based on the dissertation completed by Salwender (2023) at University of Mannheim 'Promoting gender equality at different stages of the employee life cycle: new and cumulated findings' online available at https://madoc.bib.uni-mannheim.de/65327/. We have no known conflict of interest to disclose.

### ETHICS STATEMENT

The manuscript adheres to ethical guidelines specified in the APA Code of Conduct as well as the University of Mannheim's ethics guidelines. We confirm that research is conducted ethically, results are reported honestly, the submitted work is original and not (self-)plagiarized and authorship reflects individuals' contributions.

### TRANSPARENCY STATEMENT

Studies 2–4 were preregistered on osf.io (Study 2: https://doi.org/10.17605/OSF.IO/XM7WC; Study 3: https://doi.org/10.17605/

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OSF.IO/KDXJ5; Study 4: https://doi.org/10.17605/OSF.IO/AHTM6), data and materials are available on https://osf.io/ed8w7/?view_only=03ca36afc527405d927bb326a18c052e.

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Additional supporting information can be found online in the Supporting Information section at the end of this article.

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